Soils and Ground Water Characterization
Bayonne Barrel and Drum Company
Newark, New Jersey
Job No. 84C182

PREPARED FOR

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ON BEHALF OF

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April 18, 1986
Updated: July 1986

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July 17, 1986

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Attention: Avram Eule, Esq.

Re: Transmittal of Soils and Ground Water
Characterization Report
Bayonne Barrel and Drum Co. - Newark, New Jersey
DRAI Job No. 84C182

Gentlemen:

Dan Raviv Associates, Inc. (DRAI) has completed a site investigation at Bayonne Barrel and Drum Company (BB&D). Enclosed you will find our Report entitled "Soils and Ground Water Characterization, Bayonne Barrel and Drum Company".

This investigation has been performed as outlined in the DRAI Work Plan for the Investigation of Soils, Residues, and Water Quality, in compliance with the Consent Agreement Between Bayonne Barrel and Drum Company and the United States Environmental Protection Agency (USEPA) (Docket No. II RCRA-82-0015), dated October 1, 1984.

Our report includes a summary of: (1) activities performed during field investigations; (2) site description and geologic conditions; (3) results of analyses performed on samples collected; and (4) areas of environmental concern (as they have been defined, based on the results of our investigations).

5 Central Avenue. West Orange. New Jersey 07052 (201) 325-0806

In accordance with our agreement, copies of this report should be forwarded to Mr. Frank Langella and his attorneys, as well as Mr. Stanley Siegel, Acting Chief, Solid Waste Branch, USEPA, Region II.

If you have any questions or need additional information, please call.

Very truly yours,

DAN RAVIV ASSOCIATES, INC.

Dan D. Raviv, Ph.D.
President

DDR/sm
Enc. (4 copies sent)

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1.0 Summary of Field Investigations

Four field investigations have been performed by DRAI at Bayonne Barrel and Drum Co., located at 150 Raymond Boulevard in Newark, New Jersey. During these investigations, undisturbed split spoon soil samples, surface sediment samples, and a surface water sample were collected from various locations around the site. Ground water monitoring wells were installed, developed and sampled, and several additional split spoon soil samples were collected from the well borings before the wells were installed. This work was done to establish the quality of soils and ground water at the site. All sample locations are displayed on Figure 2.

The field investigations, discussed below as Field Investigation I, II, III and IV, were performed on: January 18, 1985; October 25-31, 1985; November 27 - December 17, 1985; and January 7, 1986, respectively. All boring and drilling work done at the site was performed by Jersey Boring and Drilling Co., Inc. of Newark, New Jersey. All samples were collected using methods outlined in DRAI Field Procedure Protocols which were submitted with the DRAI Work Plan. Finally, samples were transported for analysis, via a chain of custody, to Gollob Analytical Service Laboratory in Berkeley Heights, New Jersey.

1.1 Field Investigation I - January 18, 1985

On January 18, 1985, DRAI personnel were at Bayonne Barrel and Drum Co. to sample the furnace residue pile. A total of nine split spoon soil samples, BBD1-BBD9, were collected from nine borings (Figure 2). Borings were located at the nodes of an imaginary grid laid out across the residue pile. In addition, four surface soil samples, one from the residue pile (BBD14) and three from the furnace area (BBD11-13), were collected. All samples, except for BBD 10, were analyzed for Polychlorinated Biphenyls (PCB) (Table I.1).

For the purpose of waste classification, a composite sample, BBD10, was created by mixing an equal volume of soil from each of three samples, BBD 2,5 and 8. BBD10 was then analyzed for EP-Toxicity parameters:

(1) Metals:
- (a) Arsenic (As)
- (b) Barium (Ba)
- (c) Cadmium (Cd)
- (d) Chromium (Cr)
- (e) Lead (Pb)
- (f) Mercury (Hg)
- (g) Silver (Ag)
- (h) Selenium (Se)

(2) Herbicides and Pesticides:
   (a) Endrine
   (b) Lindane
   (c) Methoxychlor
   (d) Toxaphene
   (e) 2,4-D (2,4-Dichlorophenoxyacetic acid)
   (d) 2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)

(These were the required parameters at the time this analysis was requested).

1.2 Field Investigation II - October 25-31, 1985
Just prior to Field Investigation II, the utility locator service associated with Public Service Electric & Gas Company, was contacted for the purpose of marking out the location of any utility lines that may run underneath the property. They, in turn, contacted several other major utilities. DRAI was informed that two lines exist (Figure 1).

During the second field investigation, soil borings were completed by the auger method, in various areas around the site (Figure 2). Boring locations were chosen to provide general information on conditions around the site, as well as specific target areas, such as the furnace residue pile, the furnace area, and the oil storage tanks area.

In order to examine general site conditions, seventy-six samples, composed of seventy-one split spoon soil samples, four surface sediment samples, and one surface water sample, were collected. Nineteen borings were advanced to various depths between one and fifteen feet, and undisturbed split spoon samples were collected at one foot intervals down to a depth of three feet, and at two feet intervals at depths of five, nine and thirteen feet. Analysis was requested on fifty-two of the seventy-one soil samples and all five of the surface samples (Table I.2).

One of the four surface sediment samples (BBDS1) was collected from sediment accumulation adjacent to the oil separator trench. The remaining three sediment samples (BBDS2-BBDS4) were collected, one from each of the three buildings surrounding the furnace area. All three buildings had contained drum reconditioning equipment. The floor in Building 1 contains 12 drainage canals, with an east-west orientation, along the east wall of the building. All canals were filled with cinder blocks and dry sediment, which appeared to have been swept into the canals. Sample BBDS2 was collected from the west end of the eighth canal (counting north to south). Sample BBDS3 was collected in Building 2 from within a small area enclosed by concrete curbing. Finally, sample BBDS4 was a composite collected from three small floor pits located in Building 3. Again, it appears that sediment accumulation in the building had been swept into these pits. It is from these sediments that the sample was collected.

The surface water sample (BBDW1) was collected at several locations, directly from the oil separator trench.

The list of parameters for which these samples were analyzed includes:

(1) Polychlorinated Biphenyls (PCB)
(2) Total Petroleum hydrocarbons (TPHC)
(3) Volatile Organic Compounds (VOC) plus 15 unidentified peaks
(4) Metals: As, Ba, Cd, Cr, Pb, Hg, Ag, Se
(5) 129 Priority Pollutants plus 40 unidentified peaks including:
    (a) VOC
    (b) Base Neutral and Acid Extractable Compounds (BN/AE)
    (c) Metals:
        (1) Antimony (Sb)
        (2) Arsenic (As)
        (3) Beryllium (Be)
        (4) Cadmium (Cd)
        (5) Chromium (Cr)
        (6) Copper (Cu)
        (7) Lead (Pb)
        (8) Mercury (Hg)
        (9) Nickel (Ni)
        (10) Silver (Ag)
        (11) Selenium (Se)
        (12) Thallium (Tl)
        (13) Zinc (Zn)
    (d) Phenol
    (e) Cyanide
(6) Dioxin

To verify that Dioxin is not present in soils, one sample, BBD17/0-1', collected in the furnace area, has been analyzed. This sample was chosen for Dioxin analysis because materials still remaining in the drums when received for processing, were removed in this area during the reconditioning process.

1.3 Field Investigation III - November 27 - December 17, 1985

During the third field investigation, four monitoring wells (BBDC1-4) and one monitoring well point (BBDC5) were installed at various locations on site (Figure 2). Wells BBDC1 and BBDC2 were installed as background locations. Well BBDC4 was so located to determine water quality conditions near the furnace residue pile, and well BBDC5 was so located to determine water quality conditions near the oil storage storage tanks. In addition, a deep well, BBDC3, was completed near the oil storage tanks area for the purpose of examining the quality of ground water at depth.

Additional split spoon soil samples were collected from well borings BBDC1-4, during the augering phase of well installation. A total of

twenty-one soil samples were collected, and analyses were requested on fourteen of the samples (Table I.3). Finally, after installation, the wells were developed using compressed air. Generally speaking, construction of the four monitoring wells is similar. After the initial boring was completed, four inch diameter PVC screen and casing was installed. The anulus was backfilled by pouring sandpack until it filled to a level approximately two feet above the screen. The anulus was then sealed with bentonite. A protective, locking, steel casing was set with cement in the portion of anulus still open. Construction of the deep well (BBDC3) required installation of an eight inch diameter steel casing down to a depth of thirteen feet. This was done to seal off an upper zone of contamination (discussed in more detail later). The well point (Well BBDC5) was constructed using 2½ inch diameter steel screen and casing. Well construction diagrams are presented in Appendix A.

1.4 Field Investigation IV - January 7, 1986

The last field investigation was completed on January 7, 1986. At that time, the four monitoring wells and one well point were redeveloped using a suction pump. A minimum of three well volumes was removed from each well, which was then sampled with a pre-cleaned teflon bailer. All samples were analyzed for VOC's, except for BBDC4, which was analyzed for priority pollutants (Table I.4).

2.0 Site Description and Geologic Conditions

As stated in the DRAI Work Plan, the site covers approximately 20 acres of land located in an industrial area of Newark. The area is characterized by storage tank facilities, rail yards, trucking facilities and used car yards.

Ground surface of the site is approximately ten feet above sea level and slopes downward slightly to the northeast. It is underlain by Pleistocene drift, which fills a buried valley cut into the Brunswick Formation. The Passaic River runs a loop, north of the site, and eventually joins the Hackensack River where it opens into Newark Bay. The River is within a one mile radius of the site.

The property has an elongate shape that trends northeast-southwest (Figure 1). The northern edge of the property is bounded by the Pulaski Skyway, and the southern edge is bounded by the New Jersey Turnpike. The property consists of three main buildings, formerly used in the the drum reconditioning process, and several smaller buildings, used for offices. These facilities are located at the northeast end of the property. The central and southwest portions of the property are characterized, in general, by a black coal-cinder type fill. Approximately one-third of the southwest corner of the property is used for empty drum storage.

Boring log data, accumulated during DRAI field investigations, indicate a slight difference in the type and thickness of the lithologic sequence than was originally stated in the DRAI Work Plan. Lithologic data from borings around the site indicate that there is a black coal-cinder type fill found from surface down to an average depth of ten feet. The location of hydrogeologic cross-sections are displayed on Figure 3. The fill is underlain by a medium to a coarse grained, well sorted sand that ranges in color from brown to red-brown to dark maroon-brown. Observations of the lithology at depth were made while drilling well boring BBDC3 (Figures 4 and 5). As stated above, the fill is underlain by a medium to coarse sand that lies within a depth interval of ten to forty feet. The material observed from forty to fifty feet below surface consists of a dark red-brown, uniform, coarse silt. Below fifty feet, observations of cuttings indicated a gradational zone downward into more consolidated material. Once drilling proceeded beyond fifty feet, small fragments of dark red shale were observed. Drilling continued to a depth of fifty-three feet to confirm these observations. These findings are interpreted as a vertical gradation into the upper zone of weathered Brunswick Shale Formation. Boring logs are presented in Appendix B.

3.0 Results of Analyses

Due to the volume of data, samples are not always discussed individually. Instead, the data is presented in tables using two formats. The data presented in the first format (Table II) has been categorized numerically by areas, as they are defined in Figure 6.

The concentration listed for a particular parameter (e.g., metals) represents a total of the individual constituents (e.g., Antimony, Arsenic, Barium, etc.) of that parameter. The data presented in Tables III through IX follow the second format. These data are listed chronologically and numerically. In addition, for those parameters having more than one constituent, each constituent and its concentration are listed. Chain of Custody Forms and laboratory data sheets are presented in Appendices C and D, respectively.
In summary, the list of parameters for which soil, surface sediment, surface water, and ground water samples were analyzed includes PCB's, TPHC's, VOC's, Priority Pollutants, Metals, EP-Toxicity, and Dioxin. These parameters were chosen to characterize the site and to establish base line conditions. The results of these analyses were also used to more thoroughly delineate suspected areas of environmental concern. Results, for analyses performed on samples, are discussed below.

3.1 Furnace Residue Pile Area

Forty-two soil samples were collected from the Furnace Residue Pile Area (Figure 2). Thirty-one of these forty-two samples were collected in the immediate vicinity of the furnace residue pile itself. The other eleven samples were collected from other locations within the area. One or more types of analyses, including PCB's, TPHC's, VOC's, a single priority pollutant scan and a single EP-Toxicity, were performed on thirty-four of the forty-two samples collected, and results were reported on all samples (Table II - Furnace Residue Pile Area). Eleven samples, consisting of nine split spoon soil samples (BBD1-9), one surface soil sample (BBD14) and one composite sample (BBD10), were collected during field investigation I. The nine soil samples and Sample BBD14 were analyzed for PCB's. Sample BBD10 is a composite sample which was produced on-site. An equal volume of material was taken from samples BBD2, 5 and 8, mixed on plastic, then containerized. This sample was analyzed for EP-Toxicity.

During Field Investigation II, an additional twenty-one split spoon soil samples were collected from five borings (BBD2, 4, 5, 6 and 7). Sixteen of these twenty-one samples were analyzed for parameters, including PCB's TPHC's, VOC's, and a single sample for priority pollutants. (Note: Some samples collected during Field Investigations I & II possess the same sample number; they are differentiated in the tables, by sampling date.)

The final ten of the forty-two samples are split spoon soil samples collected during field investigation III from well borings BBDC1 and 4, before installation of the wells. Seven of these samples were analyzed for PCB's, TPHC's and VOC's.

Of the eighteen samples analyzed for PCB's, laboratory results indicate that PCB's are present in six of them (Figure 7). Of the twenty-three soil samples analyzed for total petroleum hydrocarbons (TPHC's), TPHC's are present in twenty-two (Figure 8). A volatile organic compound analysis was run on six samples. Results show that four of the samples are contaminated (Figure 9). A priority pollutant scan performed on one sample (BBD4/0-1') revealed the presence of a variety of pollutants, including VOC's, metals, Phenol and Cyanide (Table 10).

3.2 Incoming Drum Storage Area

Eighteen split spoon soil samples were collected from four borings (BBD 9, 12, 13 & 15) during Field Investigation II. These borings are located in an area defined as the Incoming Drum Storage Area (Figure 6). Analyses were requested on fourteen of the eighteen samples. Analyses for PCB's, TPHC's, VOC's, and Metals were performed on thirteen samples. Results indicate that several of these contaminants are present in soils. A PCB analysis was performed on six samples. Four samples, one from each boring location, were found to be contaminated (Table II - Incoming Drum Storage Area). Three samples were analyzed for VOC's, and results show that all are contaminated. Finally, one sample (BBD15/0-1') was analyzed for metals and several constituents were detected.

3.3 Furnace Area

Fourteen samples, consisting of three surface soil, and eleven split spoon soil samples, were collected from the Furnace Area (Figure 2). One or more analyses were requested on thirteen of the fourteen samples collected, and results were reported for ten. Three surface soil samples (BBD 11, 12 and 15) collected during Field Investigation I were analyzed for PCB's. Eleven split spoon samples were collected from three borings (BBD 17, 18 and 19) during Field Investigation II. Results for seven of the eleven soil samples were reported for one or more contaminants including PCB's, TPHC's and VOC's. One sample (BBD17/0-1') was also analyzed for priority pollutants and Dioxin. Laboratory results indicate that PCB's were not present in the three surface soil samples (Table II - Furnace Area). PCB results were reported on the eight samples for which that analysis was requested and was detected in four of the samples. TPHC analysis, performed on seven soil samples, indicated that petroleum hydrocarbons are present in soils. Finally, a priority pollutant scan and an analysis for Dioxin were performed on one sample (BBD17/0-1'). Results indicate that VOC's, base neutral extractables (including Pesticide extractables) compounds, metals, Phenol and Cyanide compounds are also present in soils. Dioxin was not detected.

3.4 Oil Storage Tank Area

Thirteen samples, consisting of one surface water sample, one surface sediment sample and eleven split spoon soil samples, were collected from the oil storage tank area (Figure 2). Analyses were requested and reported for nine of the samples. Two surface samples (BBDS1 and BBDW1) and two soil samples from Boring BBD16 were collected during Field Investigation II. The remaining seven soil samples, all taken during the augering of well boring BBDC3, were collected during Field Investigation III. Analyses requested for these samples include: PCB's, TPHC's, VOC's, and a Priority Pollutant scan.

Results for these samples indicate that many of the contaminants are present in soils (Table II - Oil Storage Tanks Area). Eight samples were analyzed for PCB's and nine were analyzed for TPHC's. Four samples contain PCB's, while all nine samples contain petroleum hydrocarbons. A volatile organic analysis was performed on five of the nine samples, three of which contained VOC's. Finally, a priority pollutant scan was requested on sample BBD16/5-8' and 8-10'. PCB's and VOC's, reported as part of the priority pollutant scan, have been discussed above. The remaining types of analyses, which complete the priority pollutant analysis, are metals, Phenol and Cyanide. Several metals and Phenol were detected in relatively minor concentrations. Cyanide was not detected.

3.5 Drum Storage and Background Areas

The Drum Storage and Background Areas consist of those sections, between the process buildings and the southern plant boundary, which have not yet been discussed. A total of twenty-one samples, all split spoon soil samples, were collected from seven borings. Nineteen of the twenty-one samples were collected from six borings (BBD1, 3, 8, 10, 11, and 14) during Field Investigation II. The remaining two samples were collected from well boring BBDC2 during Field Investigation III.

Analyses were requested on eighteen samples and reported for seventeen of them. Samples were analyzed for one or more parameters, including PCB's, TPHC's and VOC's (Table II - Drum Storage and Background Areas). A priority pollutant analysis was performed on one sample (BBD14/0-1'). Results indicate that VOC's are not present. However, a total concentration of 250 ppm was reported for metals and a total concentration of 830 ppm was reported for base neutral compounds. Acid extractable compounds, Phenols and Cyanide were not detected. Five samples were analyzed for PCB's. Four of the five samples contain PCB's at a detectable concentration. All twenty-one samples were analyzed for TPHC's. Results indicate that all samples contained a detectable concentration of petroleum hydrocarbons.

3.6 Buildings

Three sediment samples (BBDS2-4) were collected, one each, from the three reconditioning buildings. Sample BBDS2 was analyzed for PCB's and VOC's, sample BBDS3 was analyzed for TPHC's and sample BBDS4 was analyzed for PCB's, TPHC's and VOC's. PCB's were detected in samples BBDS2 and BBDS4 at 80 and 11.1 ppm, respectively. Petroleum hydrocarbons were detected in samples BBDS3 and BBDS4 at 850 and 39,400 ppm, respectively, and concentrations of 84 parts per billion (ppb) was reported for sample BBDS4. Finally, volatile organics were detected in sample BBDS4 at 84 ppb.

3.7 Ground Water

A total of six samples, five ground water samples and one field blank, were analyzed (Table VIII). The field blank was made up of store-bought spring water. The types of analyses performed on the samples, with the exception of BBDC4, included PCB's, TPHC's and VOC's. Sample BBDC4 was analyzed for priority pollutants.

PCB's were detected, in a concentration of 53 ppb, in sample BBDC5. In addition, the laboratory filtered the sediment out of the sample and analyzed the sediment. A concentration of 80 ppm was reported. PCB's were not detected in any other samples. All of the ground water samples, except BBDC4, were analyzed for TPHC's. Concentrations found in samples BBDC1, 2, 3 and 6 are 2.8, 3.7, 4.8 and 1.8 ppm, respectively. The concentration in sample BBDC5, taken in the old storage tank area, was reported at 2,000 ppm. The remaining analyses were performed on sample BBDC4 as part of the priority pollutant scan. No metals were found in any significant concentrations. Although several metals were detected, all were, at, or just above, the threshold detection limit. A total concentration of 42 ppb was reported for base neutral compounds, and acid extractable compounds, Phenol and Cyanide, were not detected.

4.0 Areas of Environmental Concern

For the purpose of defining areas of environmental concern, the property has been geographically subdivided into six major areas, based on usage, land ownership, and future potential land utilization (Figure 6). These areas are:

I. Furnace Residue Pile Area
II. Incoming Drum Storage Area
III. Furnace Area
IV. Oil Storage Tank Area
V. Drum Storage and Background Area
VI. Drum Storage and Background Area (BBD3 & 8)
VII. Buildings

Activities performed in each area are discussed below in detail.

4.1 Furnace Residue Pile Area - Area I

The furnace residue pile area has been defined by two features. First, the waste residues generated during the drum cleaning process were disposed of on the furnace residue pile, which is located in this area (Figure 6); and, second, this portion of the property is owned by the principal of Bayonne Barrel & Drum Company. In addition, the remaining portion of this area is used for empty drum storage. Results of laboratory analyses indicate that a wide variety of contaminants, including PCB's, TPHC's, VOC's and metals, are present in significant concentrations in the furnace residue pile area.

4.2 Incoming Drum Storage Area - Area II

The incoming drum storage area is defined as the area which extends from the plant buildings to immediately south of the furnace area (Figure 6). This area was utilized as the first stage in reconditioning for the drums about to enter the furnace. Significant concentrations of each of four types of contaminants, PCB's, TPHC's, VOC's and metals, were found within this area.

4.3 Furnace Area - Area III

The furnace area is an enclosure created by the three main plant buildings (Figure 6). The furnace, itself, is situated here with a conveyor that passed from the incoming drum storage area, through the furnace, into a drum reconditioning building (Bldg. 2), where the process was completed. A recovery pit, rectangular in shape and perpendicular to the conveyor, was situated beneath the exit port of the furnace. Furnace residue type materials were observed on the ground, adjacent to the northwest side of the furnace. Analytical results revealed the presence of many contaminants. Constituents found included PCB's, TPHC's, VOC's, metals, base neutral compounds and Phenols.

4.4 Oil Storage Tank Area Area IV

The oil storage tank area is located east of the main plant buildings,

on the side closest to the New Jersey Turnpike (Figure 6). One tank (Figure 2) was used for storage of oil which had been liberated during the firing of incoming drums in the furnace area. Only one was observed by DRAI to be directly associated with the oil recovery system. Prior use of the remaining two tanks is unknown. There is also a trench which carried fluids, generated in the furnace area, to the oil separator area and a single underground tank located at the northern terminus of the trench. The exact volume of the tank is unknown. (Several inquiries, combined with information on file, have yielded several different answers.) However, using surface measurements, DRAI has estimated the volume to be 1,000 gallons.

Observations of the subsurface conditions, during the augering phase of borings BBD16, BBD3 & BBD5, revealed a zone of material, between three and nine feet, which appeared to be saturated with oil. Soils in this zone were very soft and fluid-like and offered little resistance when split spoons were actually driven.

The analytical results for samples collected in this area indicated that many contaminants are present in soils. PCB's and TPHC's were found at relatively high concentrations (Table II - Oil Storage Tanks Area). VOC's were detected, as were minor concentrations of metals and Phenol.

4.5 Drum Storage and Background Areas - Areas V & VI

The drum storage area encompasses those areas, between the furnace residue pile area and the main plant buildings, which have not been previously categorized (Figure 6). This area is actually divided into a northern and southern half. The division has been based on a knowledge of the prospects for land use in the future. Specifically, the Department of Transportation wishes to acquire the southern half of the property (Area V - south) to be used for transportation purposes.

These areas are characterized by a black, coal-cinder type of surface fill to a depth of approximately ten feet below surface (Figures 4 and 5). The areas are used primarily for storage of empty drums, and as lanes for vehicular traffic. Three types of pollutants, petroleum hydrocarbons, VOC's, and metals, were detected in soils within Area V. Petroleum hydrocarbons were found in all of the samples. Metals were detected in three samples, BBD8, 11 and 14. Volatile organics were detected in two of five samples analyzed for VOC's (both from well boring BBDC2).

4.6 Buildings

Three surface sediment samples (BBDS2, 3 and 4) were collected, one each, from the three main buildings surrounding the furnace area (Figure 6). Three types of analyses, PCB's, TPHC's and VOC's, were performed for the purpose of detecting contaminants in the interiors of the buildings. Results indicate that all three parameters are present in significant concentrations.

5.0 Summary of Findings

5.1 Soil and Sediment Quality

Soil samples, sediment samples, one surface water sample and five ground water samples were analyzed for a variety of parameters including PCB's, TPHC's, and VOC's. Four samples, each from a different area, were submitted for analysis of 129 Priority Pollutants plus 40 largest peaks (PP+40). A PP+40 scan includes VOC's, PCB's, Metals, Acid Extractables and Base/Neutrals Extractable Compounds, and four pesticides and two herbicides. One soil sample was submitted for analysis of Dioxin.

Analytical results for all parameters, except metals, are presented chronologically by area in Table II. This table was included to facilitate the review of results by area. Results of analyses for PCB's and total petroleum hydrocarbons (TPHC) are listed in Table III. Virtually all soil samples collected were analyzed for TPHC's. Only one sample was analyzed for Dioxin (Table III). Volatile organic compound (VOC) analyses results for both "priority" and non-priority" compounds are found on Table IV. Concentrations for inorganic parameters (metals, phenol, cyanide and pesticides) are presented in Table V. Concentrations for Base/Neutral - Pesticide extractable and acid extractable compounds are included on Table VI. Finally, results of analyses for PCB, TPHC, and VOC concentrations in surface sediment and water samples are presented on Table VII.

An unusual occurance appears to be present in the Oil Storage Tank area, which is unique to this location of the facility. During drilling operations an anomalously high water table was encountered. In addition, at the time of drilling, soils in this area possessed more fluid-like characteristics due to an abnormally high liquid content. This was observed in soils down to a depth of approximately 5 to 8 feet below surface. Concentrations for a variety of parameters reported for one ground water sample (BBDC5) and several soil samples collected in this area were consistantly higher than concentrations found in other areas. The furnace area is the only area which exhibits higher concentrations for several contaminants; specifically, concentrations of PCB's and VOC's are slightly higher. This is most likely a result of the fact that the furnace area is, in essence, the source area since the furnace area is the first location in which materials brought on site are liberated from drums. The liquid materials are then transferred to the Oil Storage Tank area for storage in above and below ground tanks, via a channel which connects both areas. The concentration for TPHC's is highest in the Oil Storage area. Although the initial source of these liquids may be the furnace area, the oils captured during drum firing are stored, in volume, in the Oil Storage Tank area thus creating a new primary source.

Polychlorinated Biphenyls. In general, results for PCB analyses indicate that this contaminant is distributed throughout the site. Concentrations reported, range from "not detected" at 1 part per million (ppm), to 320 ppm. The highest concentrations are found in the furnance and oil storage tank areas. Fluids, generated as a result of drum firing operations in the furnace area were pumped via a drainage channel into the storage tanks. Therefore, the relatively high concentration found in the storage tank area is substantiated by the fact that these materials have been readily transferred into the tanks area. PCB's were also detected in soils located in the incoming drum storage area, the furnace residue pile, and the drum storage and background areas.

A comparison of results obtained from duplicate analyses of samples performed by the laboratory, indicates a high degree of correlation in both compound identification and concentrations. The correlation between one sample (BED17/1') a field duplicate of it (BBD17/S), collected in the furnace area, does indicate some disparity. However, in our opinion, this is a result of the method used to collect the duplicate. The two samples, the original and the duplicate, were collected by driving two separate split spoon samplers into the ground. The spoon sample locations were within a one to two foot distance of each other, but the soil samples can not be considered as typical duplicates since they were not from the same sample. Instead, each sample was collected separately, one from each spoon sample recovered.

Total Petroleum Hydrocarbons. With respect to total petroleum hydrocarbons, all soil samples collected during the field investigations of October and November 1985, and submitted to the laboratory, were analyzed for TPHC's. Concentrations found in samples collected from the surface to a depth of ten feet, all exceed the maximum permissible concentration allowed in soils. With the exception of one sample, BBDC1/10-12' (410 ppm), the concentration of TPHC's in all samples collected below a depth of ten feet were below the maximum permissible concentration for TPHC's in soil.

When reviewing these results, it should be noted that this property was used as a disposal area for coal and ash. These materials were an end product of a coal-burning, electric power generating station operating in the area. A review of Figures 4 and 5 reveals that the depth of this coal-ash fill is approximately ten feet and exists as the uppermost layer, from the surface down to a depth of ten feet.

For reasons as explained in the discussion of PCB's, TPHC results for sample BBD17/1' and its duplicate BBD17/S display some disparity; however, results for duplicate analyses performed by the laboratory exhibit a high degree of correlation.

Volatile Organic Compounds. In general, volatile organic compounds in soils for priority and non-priority constituents were limited to specific areas only. VOC concentrations are significant in soils found in the incoming drum storage, furnace, oil storage tank and furnace residue pile areas, whereas results for soils analyzed outside the specified boundaries of these areas indicate that VOC's were not even present in detectable concentrations. Priority VOC's were detected in a range from "not detected" at 20 ppb to 22,553 ppb, and non-priority VOC's were detected in a range from "not detected" at 20 ppb to 66,035 ppb. The appearance of VOC's in soils is, in general, restricted to those areas in which materials handled and liberated in the process of reconditioning drums are most likely to be found. Thus, a noticeable distinction is present between contaminated and uncontaminated soils. Only one sample, (BBDC1/5-7'), collected outside any of the above named areas, contain significant concentrations of VOC's with reported values of 27.0 ppb and 2,160 ppb for priority and non-priority VOC's, respectively. VOC concentrations were found mostly within two depth intervals, 0-1' and 5-7', and where present in depths below seven feet, did not exceed the maximum permissible concentration allowed in soils.

One surface water and two surface sediment samples were analyzed for VOC's. VOC's were detected in one of the samples; however, concentrations do not exceed the maximum permissible concentration allowed in soils.

Inorganic Parameters. With respect to inorganic parameters, including metals, phenol and cyanide, some contaminants are present. Results for these parameters were generated as part of a PP+40 scan requested on four soil samples (BBD4/1', BBD14/1', BBD16/5-8 & 8-10' and BBD17/1'), one each from four different areas of the facility. Metals were found in a range of concentrations from "Not detected" for Thallium, to 15,500 ppm for Copper. The highest concentrations were found in the furnace and furnace residue pile areas. Metals showing the highest concentrations include Cadmium, Chromium, Copper, Lead and Zinc. Concentrations for these metals in the remaining two areas, in which the analyses were requested (Oil Storage Tank and Background), are substantially less. The remaining metals for which soils were analyzed were either not present, or present in relatively lower concentrations.

Phenol was detected in three of the four areas. Concentrations range between ND0.5 to 20 ppm. Phenol was detected in the furnace, furnace residue pile and oil storage tank areas. Phenol was not detected in a Background area.

Finally, Cyanide was reported in a range of concentrations from ND0.1 to 2 ppm in the furnace and furnace residue pile areas.

Base/Neutral and Acid Extractable Compounds. B/N, AE analysis was requested on four samples (as listed "Inorganic parameters). The soils are generally clean with respect to these compounds. Concentrations for base neutrals were reported in a range from ND9.5 to 850 ppm. Acid Extractable compounds were not detected.

5.2 Ground Water

Polychlorinated Biphenyls. A PCB analysis was requested for four of the five ground water samples including BBDC1, 2, 3 and 5. Contamination was detected in Well BBDC5 only, in the oil storage tank area, at a concentration of 53 ppb. Results of an analysis performed on sediments which were separated, from the water sample, by the laboratory, indicate that they also contain PCB's at a concentration of 80 ppm.

Total Petroleum Hydrocarbons. A TPHC analysis was requested on four (same as listed above) of the five ground water samples. The range of concentrations reported extends from 2.8 to 2,000 ppm. Concentrations for samples BBDC1, BBDC2, BBDC3 and BBDC5 were 2.8, 3.7, 4.8 and 2,000, respectively. A detectable concentration for TPHC's was reported (1.8) ppm) in the trip blank. As a result, the values reported for BBDC1-3, (2.8, 3.7 and 4.8 ppm) that are of the same magnitude, are questionable. However, since the results reported for sample BBDC5 are three times greater in magnitude, this is a positive indication that contamination is present in the sample.

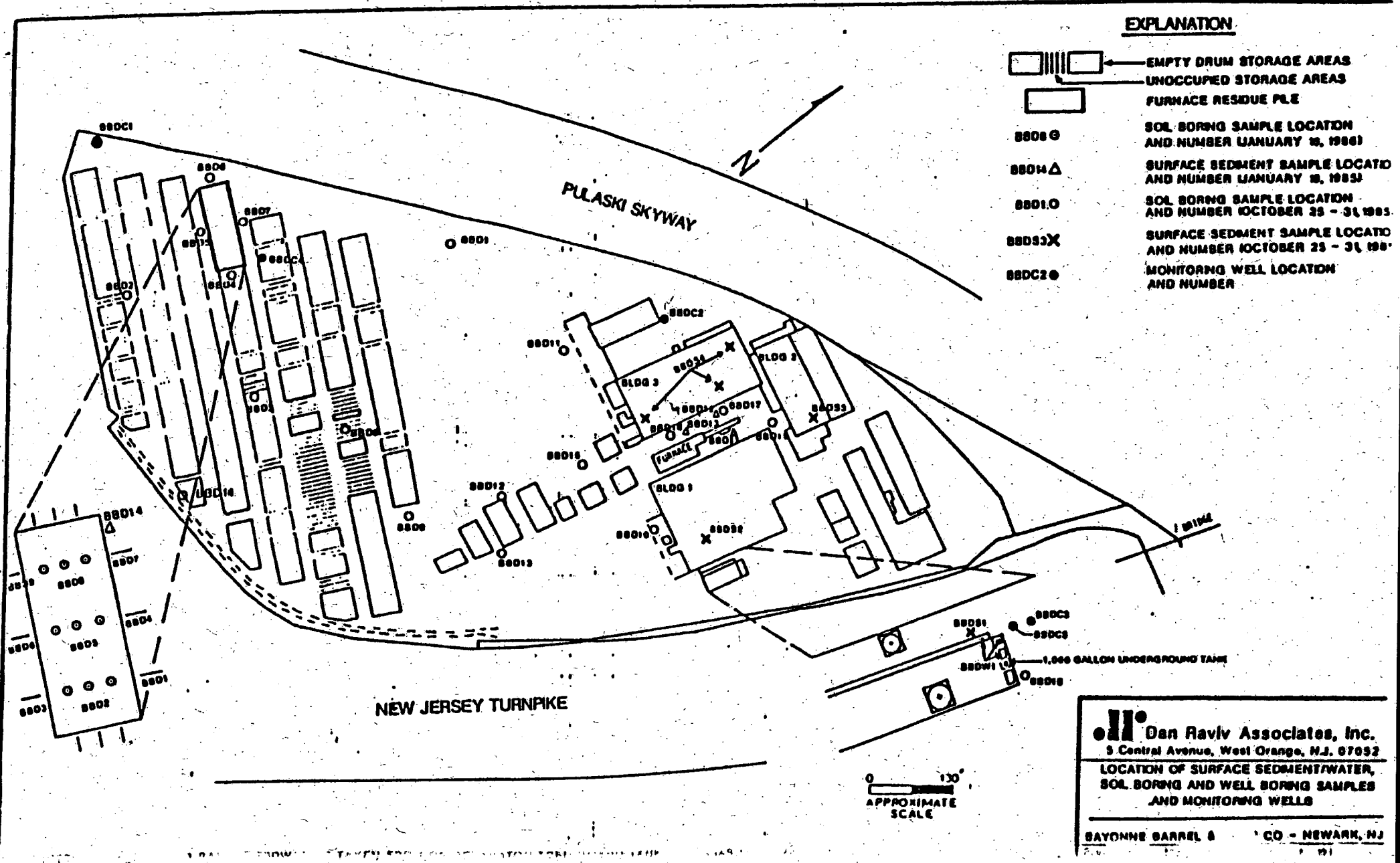
Volatile Organic Compounds. VOC's were detected in all five ground water samples. However, there is a distinct difference between the total priority and non-priority concentrations reported for water sample BBDC5 when compared to the values reported for the remaining four ground water samples. For the priority VOC's, values were reported between "not detected" and 1,353 ppb. The range of values reported for non-priority VOC's falls between "none-detected" and 4,620 ppb. The total concentration reported in well BBDC5 for each set of parameters, priority and non-priority VOC's, exceeds the maximum allowable concentration for VOC's in ground water. For concentrations reported in the remaining four wells, BBDC1, 2, 3 and 4, the combined sum of priority and non-priority VOC's concentrations found in each does not exceed the maximum allowable concentration for VOC's in ground water.

Inorganic Parameters. The inorganic parameters including metals, phenol and cyanide were requested as part of a PP+40 analysis requested on ground water sample BBDC4. With respect to these parameters, ground water was clean. Concentrations reported for all metals were reported as "not detected" or at or very close to the method detection limit, for each metal, in ground water. Both phenol and cyanide were "not detected".

Base/Neutral and Acid Extractable Compounds. B/N and AE compound analyses were also reported as part of the PP+40 scan requested on water sample BBDC4. The sum total concentration of B/N compounds reported is 42 ppb while AE compounds were "not detected".

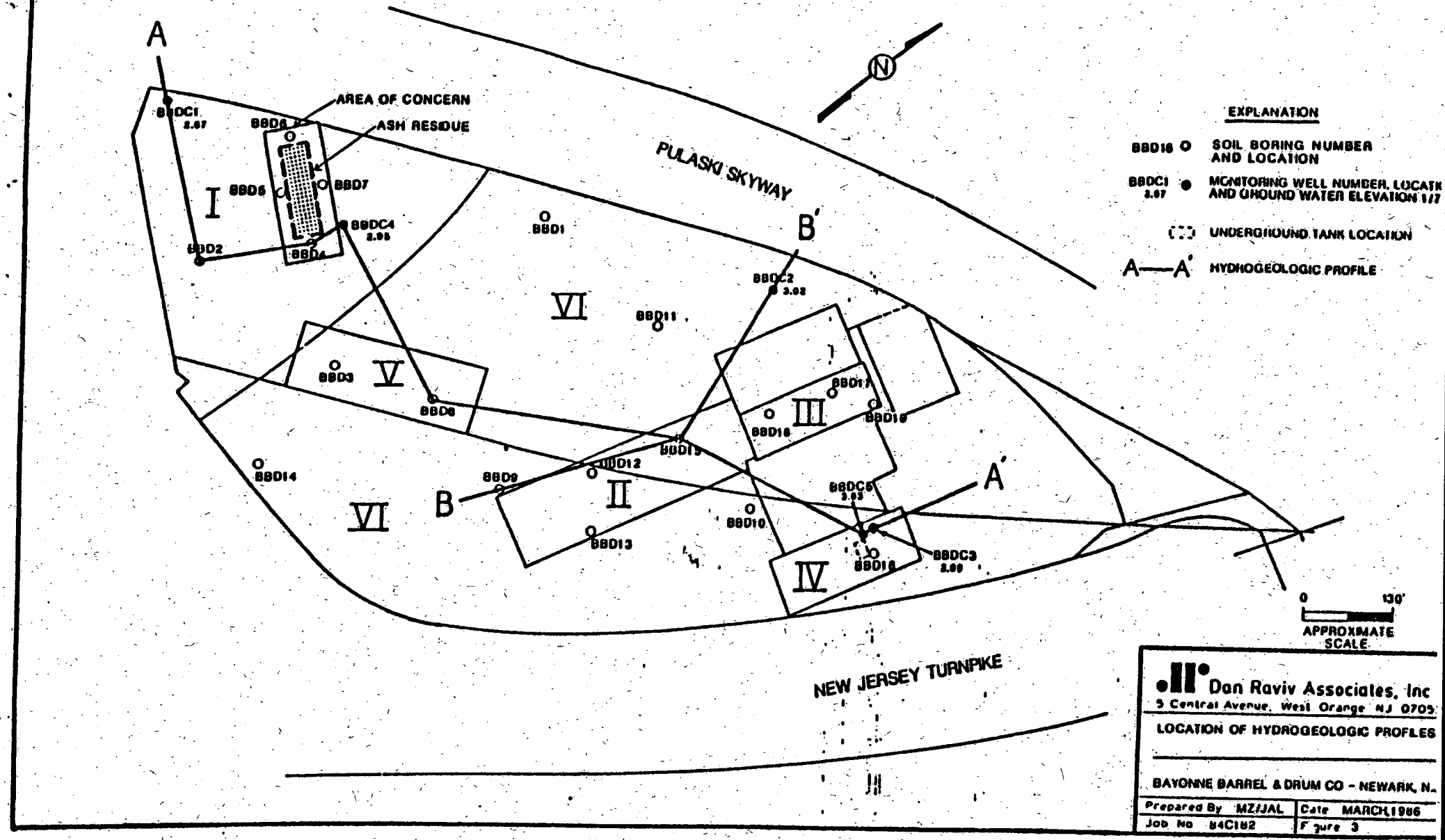
Dioxin. One sample BBD17/1', taken from the furnace area, was submitted for analysis of Dioxin. A concentration of "not-detected" at a method detection limit of 0.320 ppb was reported.

Figures


EXPLANATION
EMPTY DRUM STORAGE AREAS
UNOCCUPIED STORAGE AREAS
FURNACE RESIDUE PILE
SOIL BORING SAMPLE LOCATION AND NUMBER (JANUARY 16, 1986)
SURFACE SEDIMENT SAMPLE LOCATIO AND NUMBER (JANUARY 16, 1985)
SOIL BORING SAMPLE LOCATION AND NUMBER (OCTOBER 25 - 31, 1985
SURFACE SEDIMENT SAMPLE LOCATIO AND NUMBER (OCTOBER 25 - 31, 198
MONITORING WELL LOCATION AND NUMBER
PULASKI SKYWAY
NEW JERSEY TURNPIKE
BLDG 1
BLDG 2
BLDG 3
FURNACE
1,000 GALLON UNDERGROUND TANK
0
100'
APPROXIMATE SCALE
Dan Raviv Associates, Inc.
3 Central Avenue, West Orange, N.J. 07052
LOCATION OF SURFACE SEDIMENT/WATER, SOIL BORING AND WELL BORING SAMPLES AND MONITORING WELLS
BAYONNE BARREL &
CO - NEWARK, NJ

APPENDIX A

RESULTS OF GROUND WATER ANALYSES
JUNE 1984

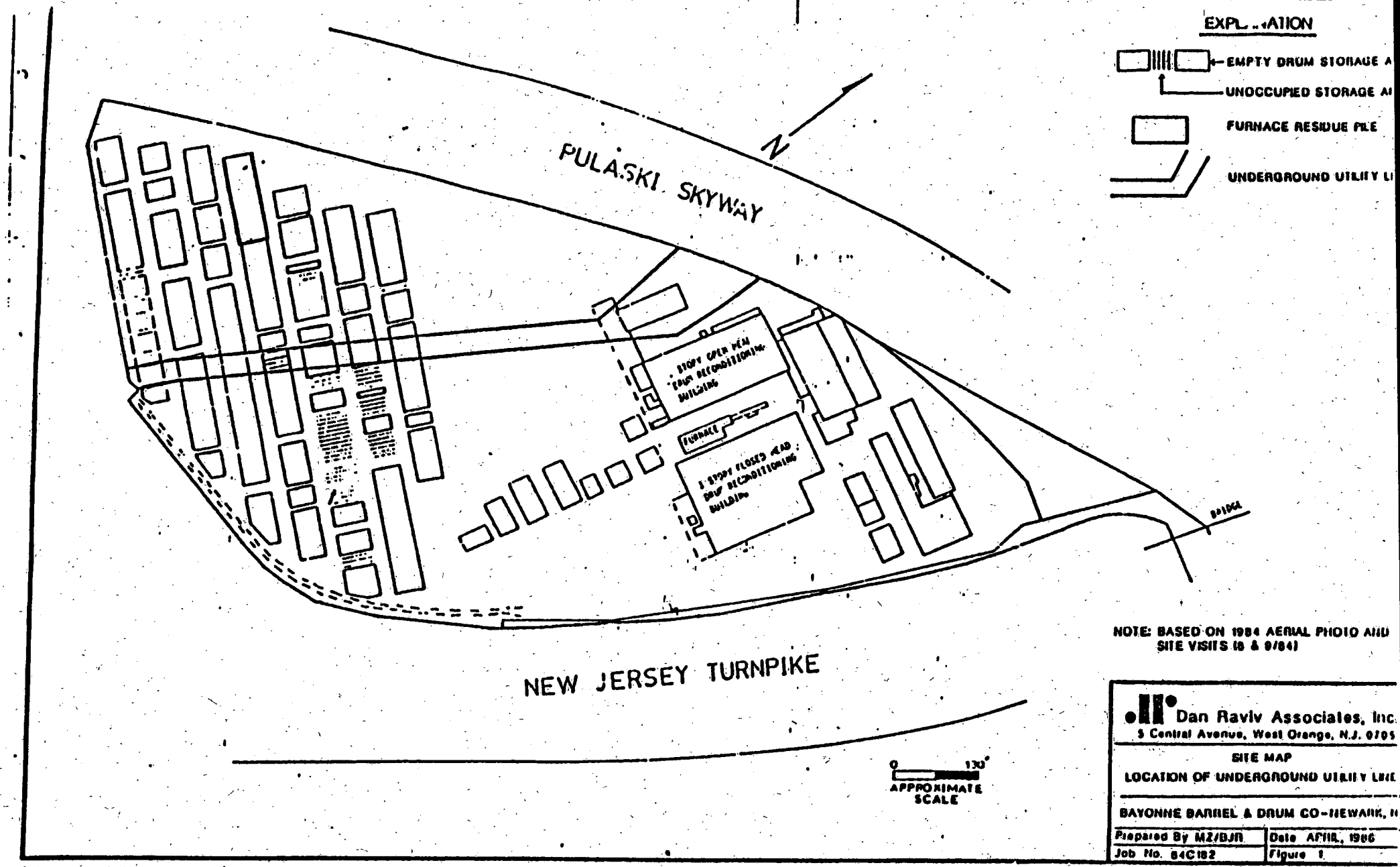


Dan Raviv Associates, Inc
5 Central Avenue, West Orange NJ 0705

LOCATION OF HYDROGEOLOGIC PROFILES

BAYONNE BARREL & DRUM CO - NEWARK, N.

Prepared By MZ/JAL	Date MARCH,1986
Job No 84C182	Figure 3



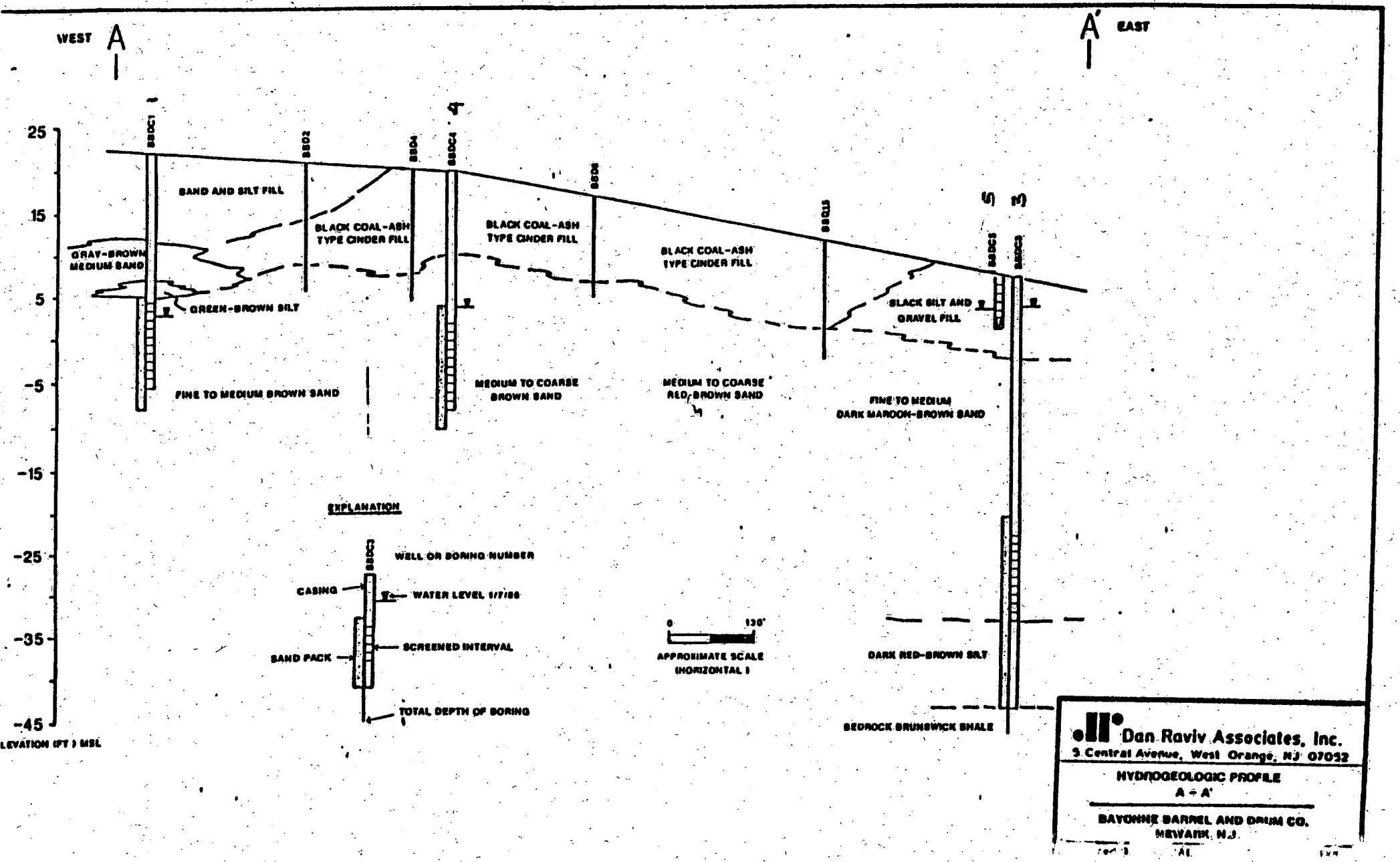
NOTE: BASED ON 1984 AERIAL PHOTO AND SITE VISITS (8 & 9/84)

Dan Raviv Associates, Inc.
5 Central Avenue, West Orange, N.J. 0705

SITE MAP
LOCATION OF UNDERGROUND UTILITY LINE

BAYONNE BARREL & DRUM CO-NEWARK, N

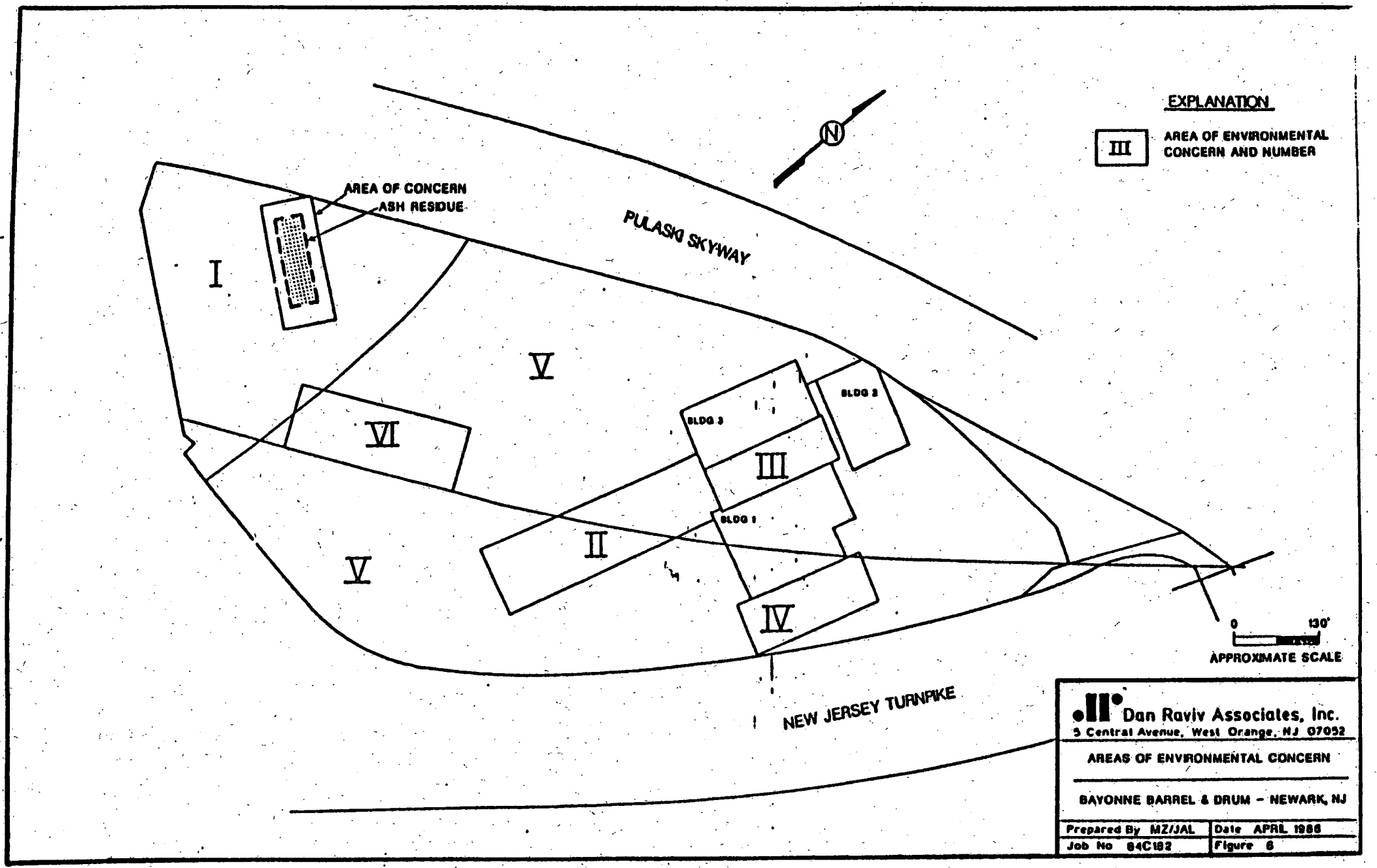
Prepared By MZ/DJR	Date APRIL, 1986
Job No. 84C182	Figure 1

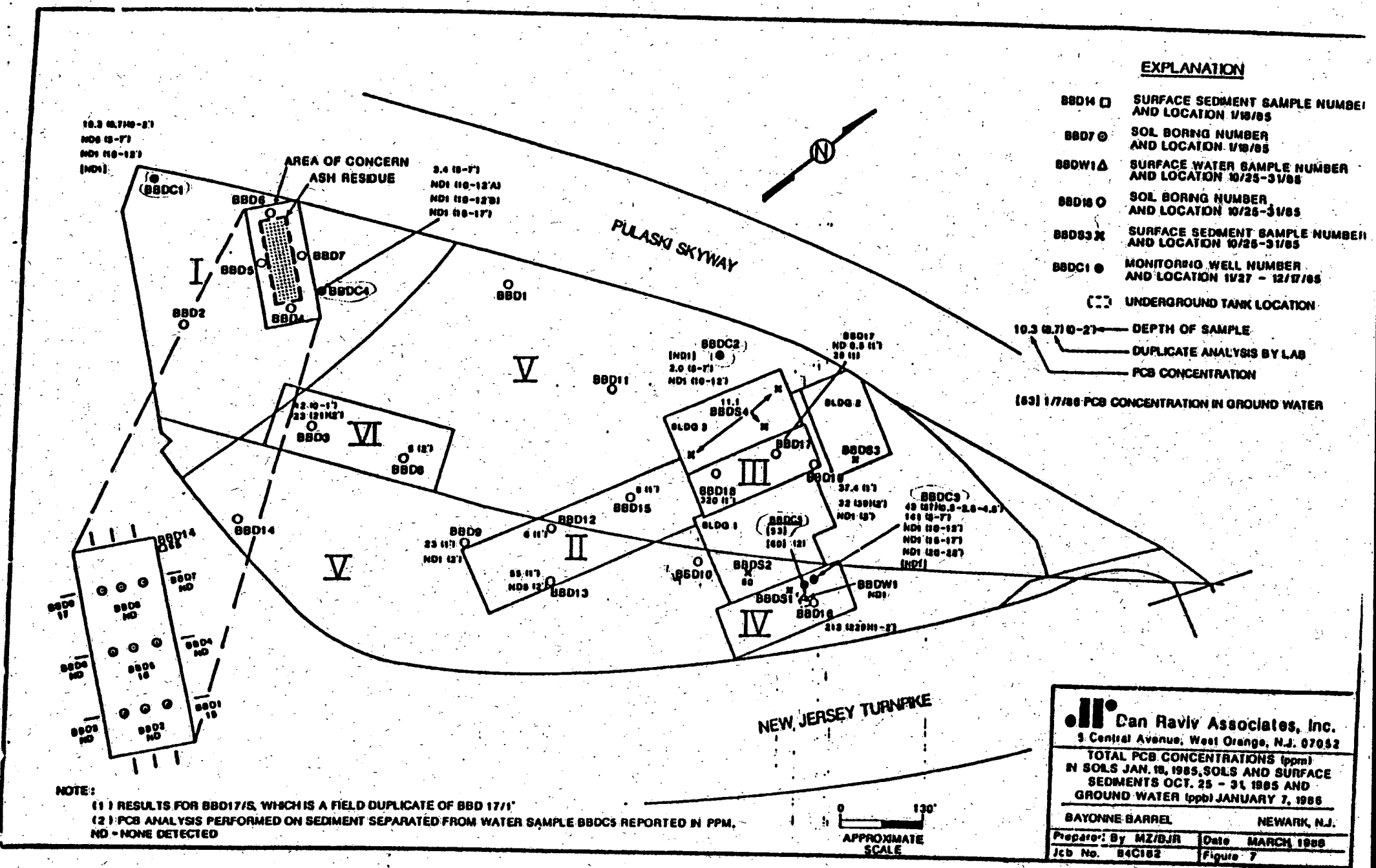


Dan Raviv Associates, Inc.
5 Central Avenue, West Orange, NJ 07052

HYDROGEOLOGIC PROFILE
A - A'

BAYONNE BARREL AND DRUM CO.
NEWARK, N.J.


EXPLANATION
III
AREA OF ENVIRONMENTAL CONCERN AND NUMBER
N
AREA OF CONCERN
ASH RESIDUE
PULASKI SKYWAY
I
V
VI
V
II
III
IV
BLDG 3
BLDG 2
BLDG 1
0
130'
APPROXIMATE SCALE
NEW JERSEY TURNPIKE
Dan Raviv Associates, Inc.
5 Central Avenue, West Orange, NJ 07052
AREAS OF ENVIRONMENTAL CONCERN
BAYONNE BARREL & DRUM - NEWARK, NJ
Prepared By MZ/JAL
Date APRIL 1986
Job No 84C182
Figure 6



NOTE:

(1) RESULTS FOR BBD17/S, WHICH IS A FIELD DUPLICATE OF BBD 17/1'

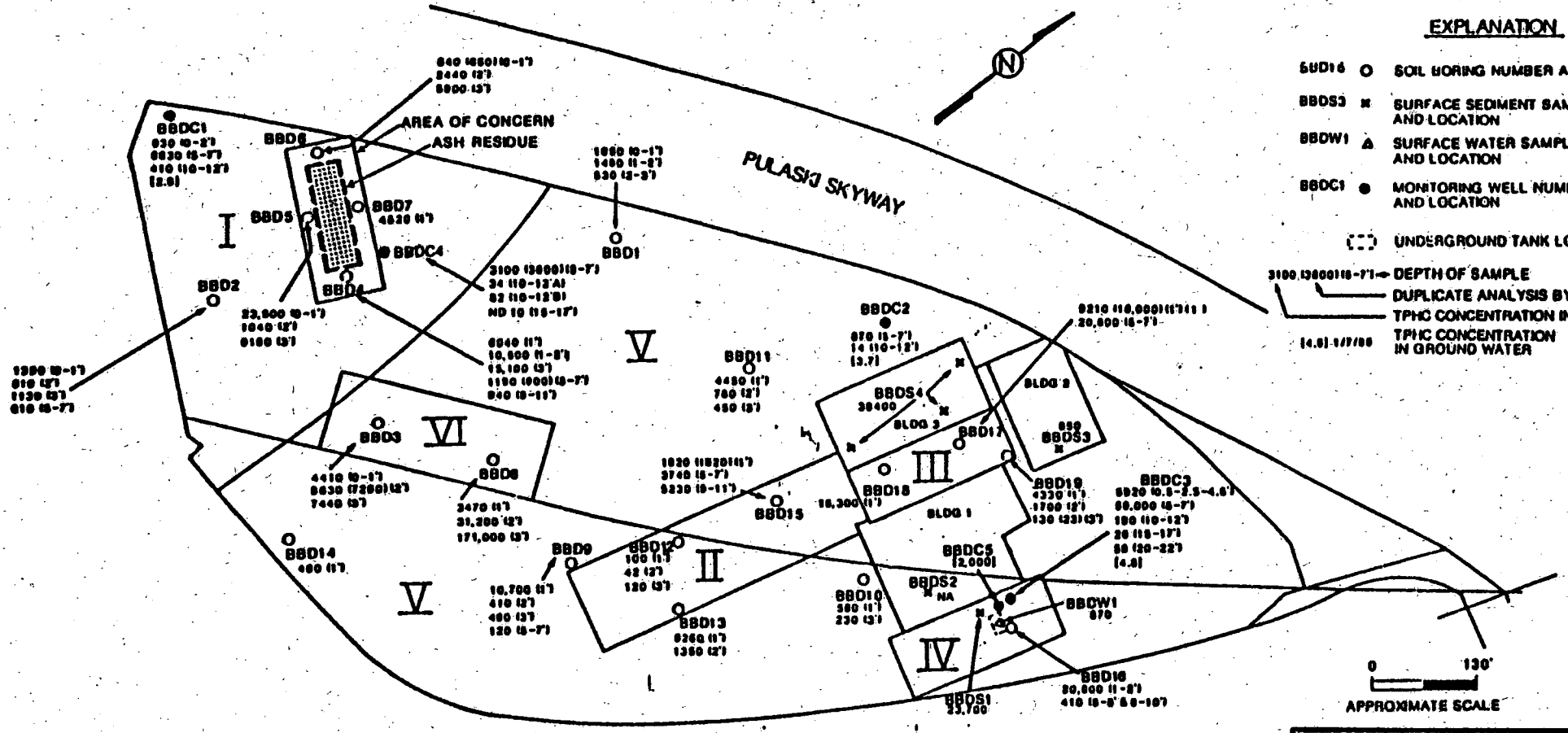
(2) PCB ANALYSIS PERFORMED ON SEDIMENT SEPARATED FROM WATER SAMPLE BBDCS REPORTED IN PPM, ND = NONE DETECTED

Can Raviv Associates, Inc.
5 Central Avenue, West Orange, N.J. 07052

TOTAL PCB CONCENTRATIONS (ppm) IN SOILS JAN. 18, 1985, SOILS AND SURFACE SEDIMENTS OCT. 25 - 31, 1985 AND GROUND WATER (ppb) JANUARY 7, 1986

BAYONNE BARREL — NEWARK, N.J.

Prepared By MZ/BJR	Date MARCH, 1986
Job No. 84C182	Figure 7



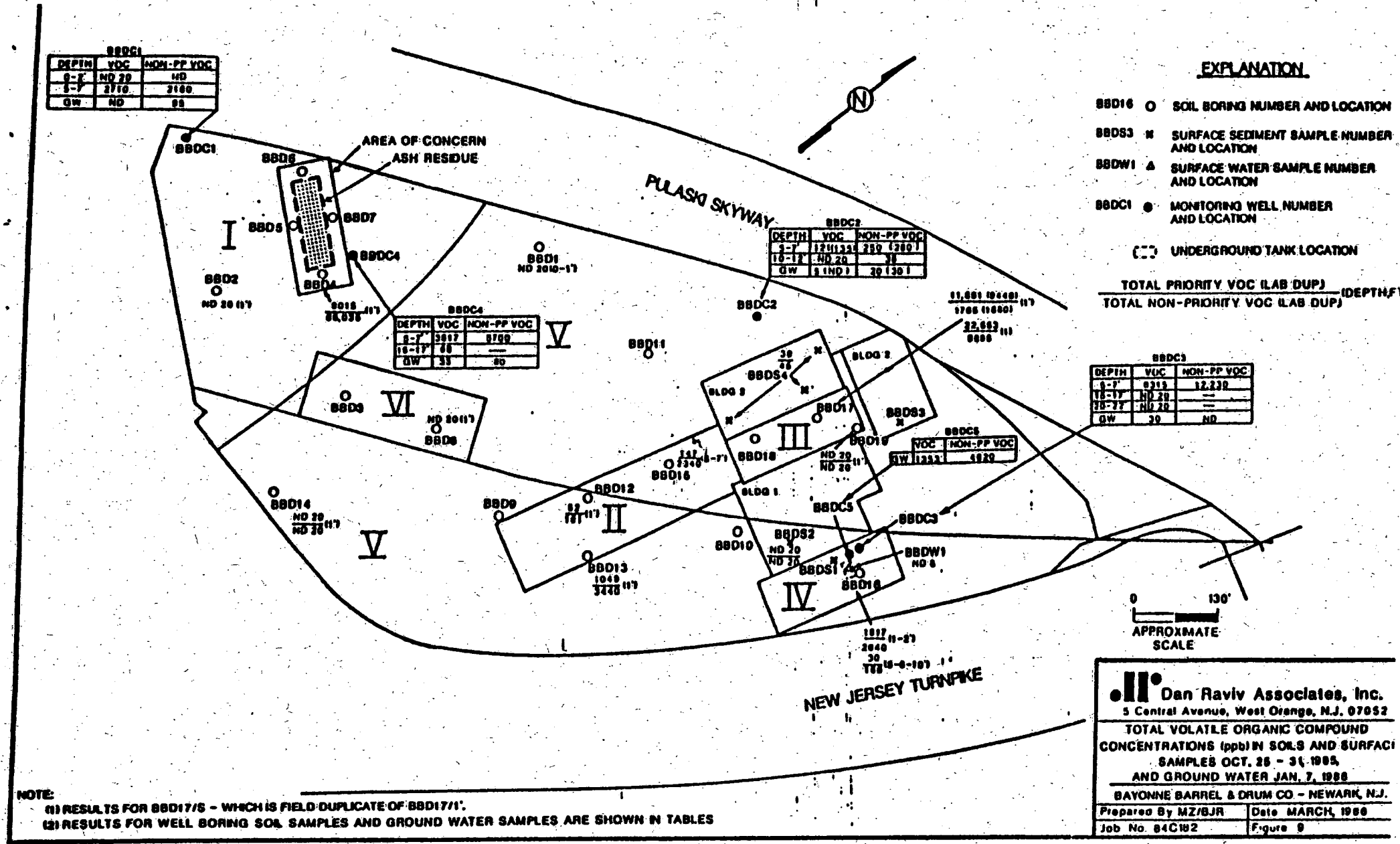
NOTE:
(1) RESULTS FOR BBD17/S, WHICH IS A FIELD DUPLICATE OF BBD17/1'.
NA - NOT ANALYZED

Dan Raviv Associates, Inc.
5 Central Avenue, West Orange, NJ 07052

TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS (ppm) IN SOILS AND SURFACE SAMPLES OCT. 26 - 31, 1985 AND GROUND WATER JAN. 7, 1986

BAYONNE BARREL & DRUM CO - NEWARK, NJ.

Prepared By MZ/BJR	Date MARCH, 1986
Job No 84C182	Figure 8



NOTE:
(1) RESULTS FOR BBD17/S - WHICH IS FIELD DUPLICATE OF BBD17/1'.
(2) RESULTS FOR WELL BORING SOIL SAMPLES AND GROUND WATER SAMPLES ARE SHOWN IN TABLES

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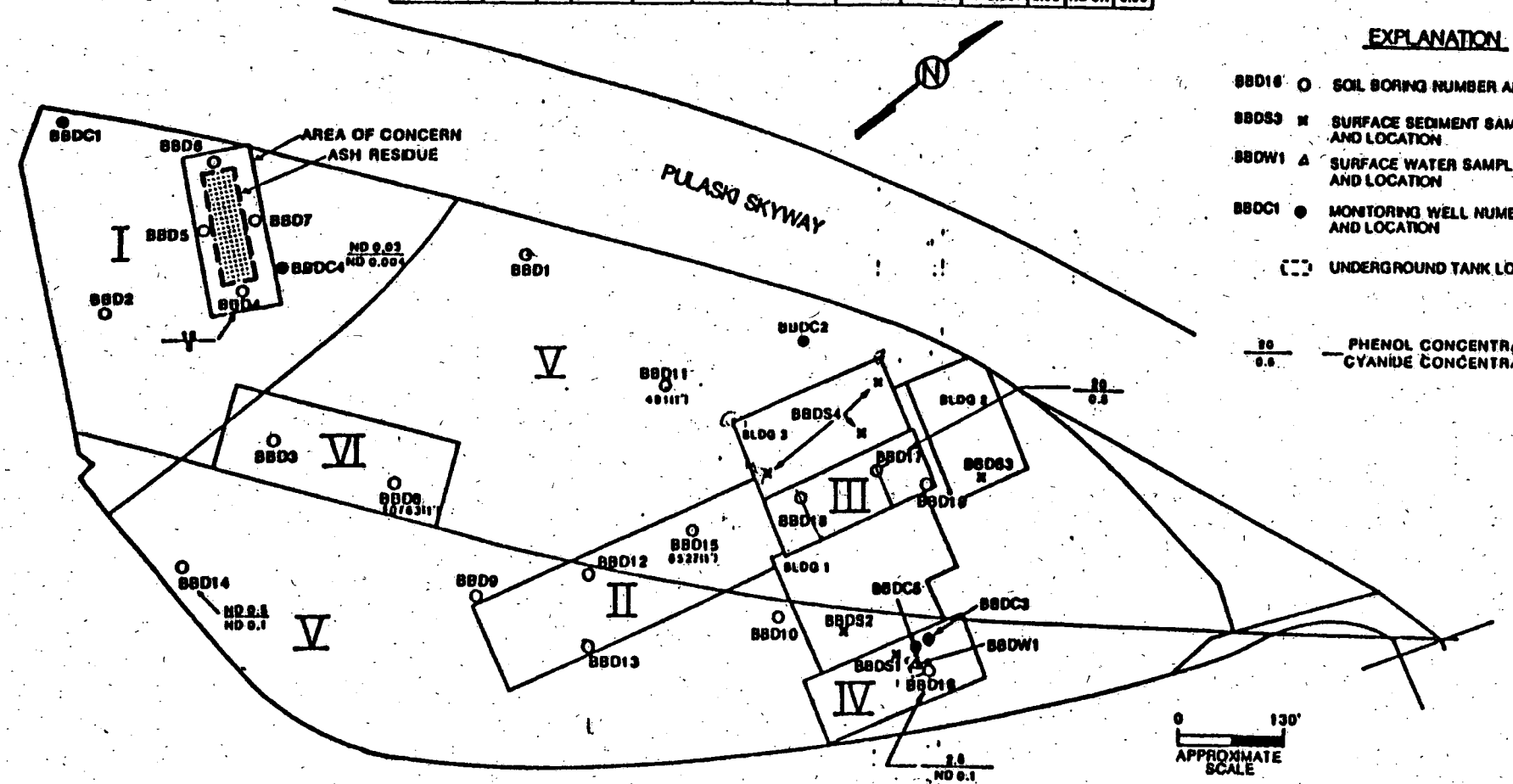
TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS (ppb) IN SOILS AND SURFACE SAMPLES OCT. 28 - 31, 1985, AND GROUND WATER JAN. 7, 1986

BAYONNE BARREL & DRUM CO - NEWARK, N.J.

Prepared By MZ/BJR	Date MARCH, 1986
Job No. 84C192	Figure 9

GROUND WATER

METALS (PPM)	Sb	As	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
BBDC4	ND 0.5	0.01	ND 0.01	ND 0.01	ND 0.01	0.04	ND 0.1	ND 0.0002	ND 0.01	ND 0.0007	0.03	ND 0.1	0.03



EXPLANATION

- BBD16 O — SOIL BORING NUMBER AND LOCATION
- BBDS3 ⊠ — SURFACE SEDIMENT SAMPLE NUMBER AND LOCATION
- BBDW1 △ — SURFACE WATER SAMPLE NUMBER AND LOCATION
- BBDC1 ● — MONITORING WELL NUMBER AND LOCATION
- UNDERGROUND TANK LOCATION
- 20 / 0.6 — PHENOL CONCENTRATION (ppm) / CYANIDE CONCENTRATION (ppm)

SOILS

METAL (PPM)	Sb	As	Be	Be	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Se	Tl	Zn
BBD 4/1'	13	17	NR	0.84	1300	3400	18600	9400	2.2	62.4	0.92	0.030	ND 0.4	4520
BBD 14/1'	0.4	5.4	NR	0.38	0.52	37	16.0	92	1.0	26	0.3	0.019	ND 0.4	71.2
BBD 16/6-8'	4.0	2.8	NR	0.32	0.2	7.00	4.64	16	0.62	0.26	0.8	ND 0.004	ND 0.4	18.4
BBD 17/1'	0.6	58	NR	0.50	0.68	2300	126	370	1.6 (2.3)	50.0	1.7	0.023	ND 0.4	6040

NOTES:

FOR SAMPLES BBD 8, 11 & 15, METALS ANALYSIS INCLUDES: As,Ba,Cd,Cr,Pb,Hg,Ag and Se.
FOR SAMPLES BBD4, 14, 16 & 17, METALS ANALYSIS INCLUDES: Sb,As,Be,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Tl AND Zn.
(GW)-RESULTS SHOWN FOR SAMPLE BBDC4 ARE CONCENTRATIONS IN GROUND WATER.

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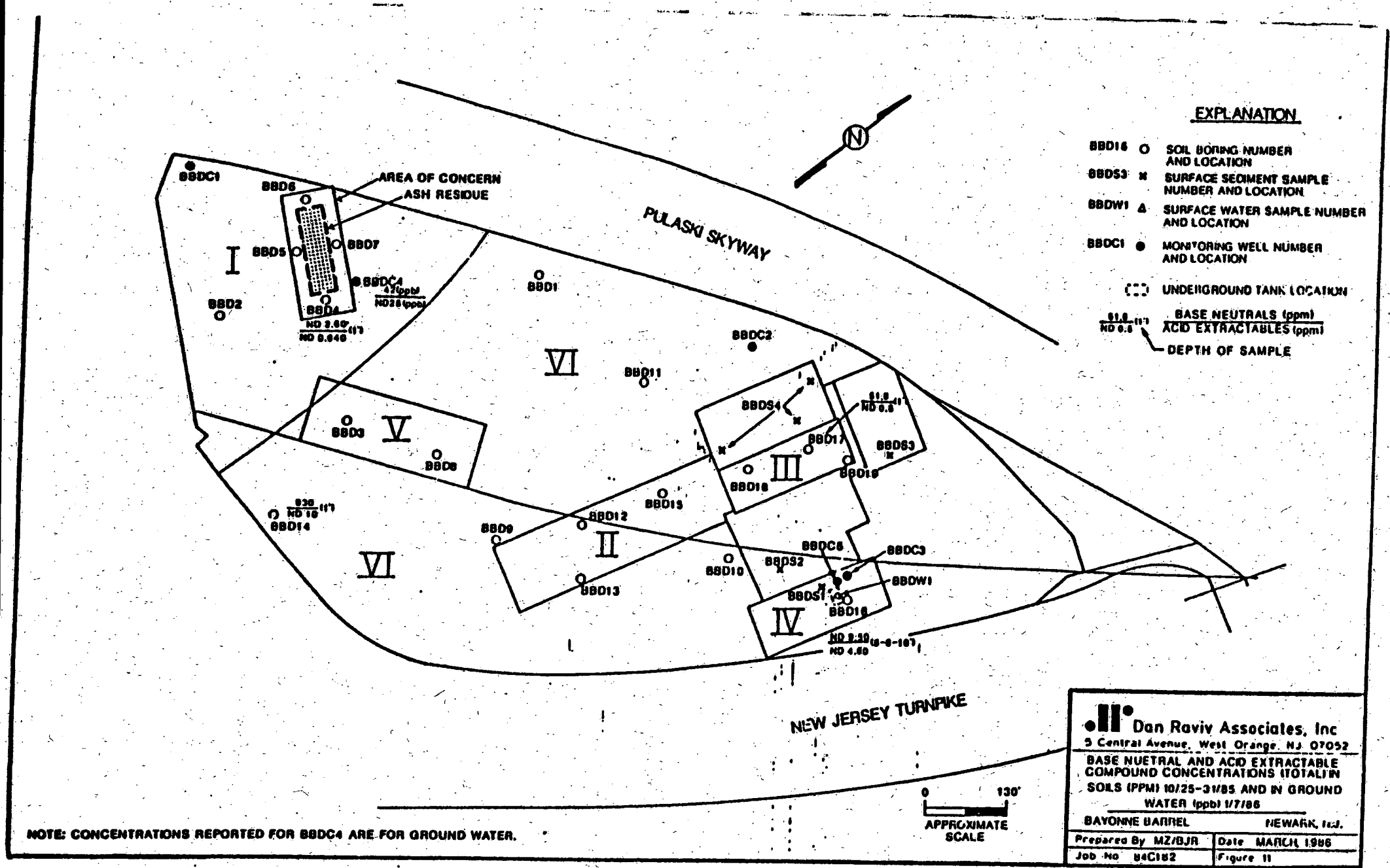
METALS, PHENOL, AND CYANIDE CONCENTRATIONS (ppm) IN SOILS
OCTOBER 25 - 31, 1985
AND GROUND WATER JANUARY 7, 1986

BAYONNE BARREL & DRUM CO - NEWARK, NJ

Prepared By MZ/JAL	Date APRIL, 1986
Job No. 84C182	Figure 10



NOTE: CONCENTRATIONS REPORTED FOR BBDC4 ARE FOR GROUND WATER.

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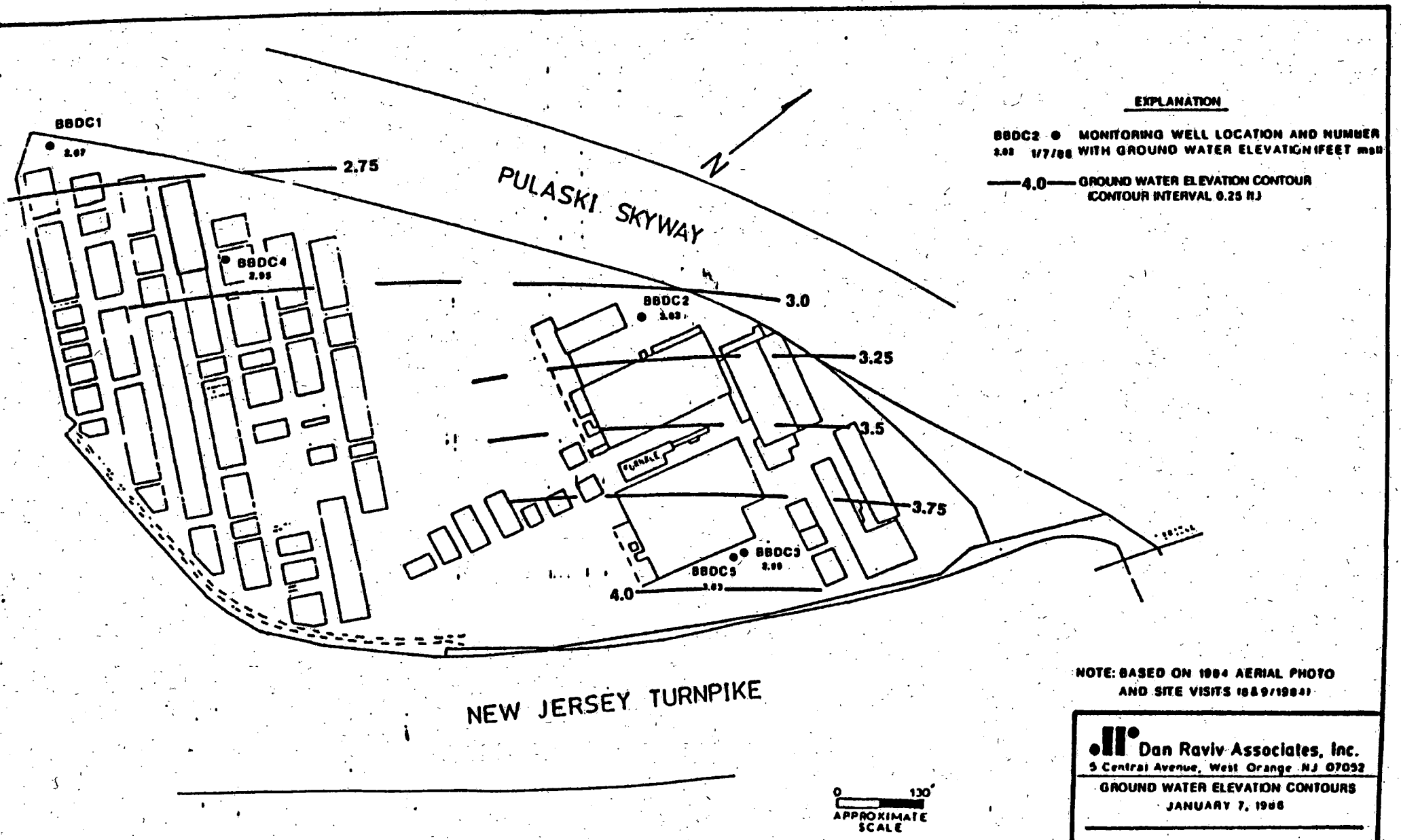
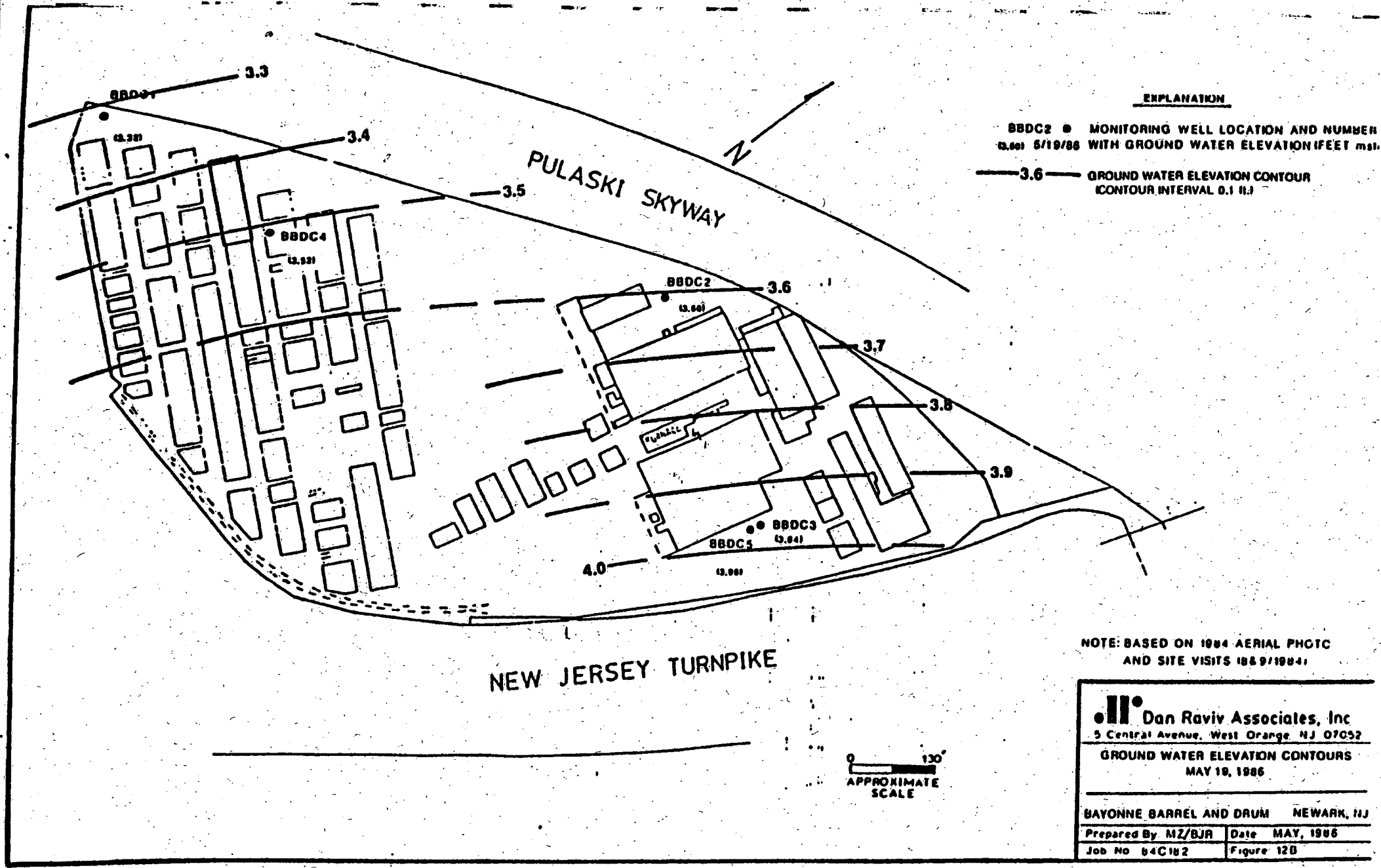
BASE NUETRAL AND ACID EXTRACTABLE COMPOUND CONCENTRATIONS (TOTAL) IN SOILS (PPM) 10/25-31/85 AND IN GROUND WATER (ppb) 1/7/86

BAYONNE BARREL NEWARK, N.J.

Prepared By MZ/BJR	Date MARCH 1986
Job No 84C182	Figure 11


EXPLANATION
BBDC2 ● MONITORING WELL LOCATION AND NUMBER
2.03 1/7/86 WITH GROUND WATER ELEVATION (FEET msl)
4.0 GROUND WATER ELEVATION CONTOUR
(CONTOUR INTERVAL 0.25 ft)
BBDC1
2.07
BBDC4
2.95
BBDC2
2.03
BBDC3
2.99
BBDC5
2.63
2.75
3.0
3.25
3.5
3.75
4.0
PULASKI SKYWAY
N
NEW JERSEY TURNPIKE
0 130'
APPROXIMATE SCALE
NOTE: BASED ON 1984 AERIAL PHOTO AND SITE VISITS (8&9/1984)
Dan Raviv Associates, Inc.
5 Central Avenue, West Orange NJ 07052
GROUND WATER ELEVATION CONTOURS
JANUARY 7, 1986
BAYONNE BARREL AND DRUM NEWARK, NJ
Prepared By MZ/LR Date MAY, 1986
Job No 182 Figure



NOTE: BASED ON 1984 AERIAL PHOTO AND SITE VISITS 8&9/1984

Dan Raviv Associates, Inc
5 Central Avenue, West Orange NJ 07052

GROUND WATER ELEVATION CONTOURS
MAY 19, 1986

BAYONNE BARREL AND DRUM NEWARK, NJ

Prepared By MZ/BJR	Date MAY, 1986
Job No 84C182	Figure 12B

Tables

Table I.1

Summary of Soil Boring and Surface Samples and Analyses
Field Investigation I
January 18, 1985

Boring/Soil Sample No.	Sample Interval Deep (feet)	Analyses Requested
BBD1	0-2	PCB
BBD2	0-2	PCB
BBD3	0-3	PCB
BBD4	0-3	PCB
BBD5	0-3	PCB
BBD6	0-3	PCB
BBD7	0-3	PCB
BBD8	0-3	PCB
BBD9	0-3	PCB
BBD10	Composite (1)	EP-Toxicity
BBD11	Surface	PCB
BBD12	Surface	PCB
BBD13	Surface	PCB
BBD14	Surface	PCB

(1) Sample BBD10 is a composite of samples BBD 2,5 and 8. Analysis includes metals (As,Ba,Cd,Cr,Pb,Hg,Ag and Se), Eerbicides (Endrine, Lindane, Methoxychlor, and Toxaphene) and Pesticides (2,4-D and 2,4,5-TP Silvex).

Table 1.2

Summary of Soil Boring and Surface Samples and Analyses
Field Investigation II
October 25-31, 1985

Boring/Soil Sample No.	Sample Interval Depth (feet)	Analyses Requested
BBD1	0-1	TPHC, VOA
	1-2	[TPHC] (2)
	2-3	[TPHC]
	5-7	[TPHC]
BBD2	0-1	TPHC, VOA
	1-2	[TPHC]
	2-3	[TPHC]
	5-7	TPHC
	9-11	NR
	13-15	NR
BBD3	0-1	PCB, TPHC
	1-2	[PCB,TPHC]
	2-3	[TPHC]
BBD4	0-1	PP, TPHC
	1-2	TPHC
	2-3	[TPHC]
	5-7	[TPHC]
	9-11	[TPHC]
	13-15	NR
BBD5	0-1	TPHC
	1-2	[TPHC]
	2-3	[TPHC]
BBD6	0-1	TPHC
	1-2	[TPHC]
	2-3	[TPHC]
BBD7	0-1	TPHC
	1-2	NR
	2-3	NR
BBD8	0-1	TPHC, VOA, Metals
	1-2	[PCB, TPHC]
	2-3	[TPHC]
	5-7	TPHC
	7-9	NR
	9-11	NR

(1) NR = Analysis Not Requested.
(2) Request for analyses listed in brackets was made on 2/5/86.

Table 1.2 (cont'd)

Summary of Soil Boring and Surface Samples and Analyses
Field Investigation II
October 25-31, 1985

Boring/Soil Sample No.	Sample Interval Depth (feet)	Analyses Requested
BBD9	0-1	PCB, TPHC
	1-2	[PCB, TPHC] (1)
	2-3	TPHC
	5-7	[TPHC]
	7-9	NR (2)
	9-11	NR
BBD10	0-1	TPHC
	1-2	(PCB,TPHC) (3)
	2-3	[TPHC]
BBD11	0-1	TPHC, Metals
	1-2	TPHC
	2-3	[TPHC]
BBD12	0-1	PCB,TPHC, VOA
	1-2	[TPHC]
	2-3	[TPHC]
BBD13	0-1	PCB, TPHC, VOA
	1-2	[PCB, TPHC]
	2-3	(TPHC)
	4(Field Blank)	VOA
BBD14	0-1	PP, TPHC
BBD15	0-1	PCB, TPHC, Metals
	1-2	NR
	2-3	(TPHC)
	5-7	TPHC, VOA
	9-11	[TPHC]
	12-14	NR
	15(Field Blank)	VOA
BBD16	1-2	VOA, [PCB, TPHC]
	5-8 & 8-10	PP, TPHC

(1) For parameters listed in brackets, request for analyses was made on 2/5/86.

(2) NR = Analysis not requested.

(3) For parameters listed in parenthesis, request for analyses was made 2/5/86; however, the sample was either lost or not analyzed due to insufficient volume.

Table I.2 (cont'd)

Summary of Soil Boring and Surface Samples and Analyses
Field Investigation II
October 25-31, 1985

Boring/Soil Sample No.	Sample Interval Depth (feet)	Analyses Requested
BBD9	0-1	PCB, TPHC
	1-2	[PCB, TPHC] (1)
	2-3	TPHC
	5-7	[TPHC] (2)
	7-9	NR
	9-11	NR
BBD17	0-1	PP,TPHC, Dioxin
	S (1)	PCB, TPHC, VOA
	2-3	(PCB, TPHC) (2)
	5-7	[TPHC] (3)
	9-11	NR
BBD18	0-1	PCB,TPHC
	1-2	(PCB, TPHC)
	2-3	(PCB, TPHC)
BBD19	0-1	PCB,TPHC, VOA
	1-2	[PCB, TPHC]
	2-3	[PCB, TPHC]
BBD20	(Field Blank)	VOA
BBDW1	Surface Water	PCB, TPHC
BBDS1	Surface Sediment	PCB, TPHC
BBDS2	Surface Sediment	PCB, VOA
BBDS3	Surface Sediment	TPHC
BBDS4	Surface Sediment	PCB,TPHC, VOA

(1) BBD17/S is a field duplicate of BBD17/0-1'.
(2) For parameters listed in parentheses, request for analyses was made 2/5/86; however, the sample was either lost or not analyzed due to insufficient volume.
(3) For parameters listed in brackets, request for analysis was made 2/5/86.

Table I.3

Summary of Well Boring Samples and Analyses
Field Investigation III
November 27 - December 17, 1985

Boring/Soil Sample No.	Sample Interval Depth (feet)	Analyses Requested
BBDC1	0-2	PCB, TPHC, VOA
	5-7	VOA, [PCB,TPHC]
	10-12	PCB, TPHC
	15-17	NR
	20-22	NR
BBDC2	5-7	PCB, TPHC, VOA
	10-12	PCB, TPHC
BBDC3	0.5-2.5 & 2.5-4.5	[PCB,TPHC] (2)
	5-7	PCB, TPHC, VOA
	10-12	(PCB, TPHC)
	30-32	NR
	35-37	NR
	40-42	NR
BBDC4	0-2	NR
	5-7	PCB, TPHC, VOA
	10-12A	PCB, TPHC
	10-12B	PCB, TPHC
	15-17	PCB, TPHC, VOA
BBDC5	No Sample	PCB

(1) NR = Analysis Not Requested.
(2) For parameters listed in brackets, request for analyses was made on 2/5/86.
(3) For parameters listed in parentheses, request for analyses was made on 2/5/86; however, the sample was either lost or not analyzed due to insufficient volume.

Table I.4

Summary of Ground Water Analyses
Field Investigation IV
January 7, 1986

Well Sample No.	Analysis Requested
BBDC1	PCB, TPHC, VOA
BBDC2	PCB, TPHC, VOA
BBDC3	PCB, TPHC, VOA
BBDC4	129 Priority Pollutants +40
BBDC5	PCB, TPHC, VOA
BBDC6 (1)	PCB, TPHC, VOA

(1) Sample BBDC6 is a field blank.

Table II
Summary of Sample Results by Area:
Concentrations of PCB's, TPHC's, VOC's, Base/Neutrals,
Acid Extractables, Phenol, Cyanide & Dioxin
Bayonne Barrel & Drum Company

PARAMETER: (units)	Sample No.	Sample Depth (ft)	PCB's (ppm)	TPHC's (ppm)	VOC 's PRIORITY (Total) (ppb)	VOC's NON PRIORITY (ppb)	B/N (Total) (ppm)	AE (Total) (ppm)	PHENOL (ppm)	CYANIDE (ppm)
FURNACE RESIDUE PILE AREA										
January 18, 1985										
	BBD 1	0-2		13 -						
	BBD 2	0-2	ND	10 -						
	BBD 3	0-3	ND	10 -						
	BBD 4	0-2	ND	10 -						
	BBD 5	0-2		16 -						
	BBD 6	0-3	ND	10						
	BBD 7	0-2	ND	10 -						
	BBD 8	0-3	ND	15 -						
	BBD 9	0-3		17 -						
	BBD 10	C								
	BBD 14	surface		69 -						
October 29-31, 1985										
	BBD 2	0-1		1,390 -	ND 20	ND 20				
	BBD 2	1-2		810						
	BBD 2	2-3		1,130						
	BBD 2	5-7		610						
	BBD 4	0-1		6,040	9,015 -	66,035	ND 0.640	ND 2.60	15	2
	BBD 4	1-2		10,500						
	BBD 4	2-3		15,100						
	BBD 4	5-7		1,190	(900)					
	BBD 4	9-11		940						
	BBD 5	0-1		23,800						
	BBD 5	1-2		1,040						
	BBD 5	2-3		9,180						
	BBD 6	0-1		640	(680)					
	BBD 6	1-2		2,440						
	BBD 6	2-3		5,900						
	BBD 7	0-1		4,320						

Notes: ND = Not detected at or above minimum detection limit indicated.
C = Composite of samples BBD 2, BBD 5 & BBD 8.
Laboratory duplicates in parentheses.
If no entry, analysis was not requested.

Table II (cont.)
Summary of Sample Results by Area:
Concentrations for PCB's, TPHC's, VOC's, Base/Neutrals,
Acid Extractables, Phenol, Cyanide & Dioxin
Seymour Barrel & Drum Company

PARAMETER: (units)	Sample No.	Sample Depth (ft)	PCB's (ppm)	TPHC's (ppm)	VOC 's PRIORITY (Total) (ppb)	VOC's NON PRIORITY (ppb)	B/N (Total) (ppm)	AE (Total) (ppm)	PHENOL (ppm)	CYANIDE (ppm)	DIOXIN (ppb)
Sample Date											
FURNACE RESIDUE PILE AREA (cont.)											
November 27 - December 17, 1985											
	SSDC 1	0-2	10.3 (8.7)	830	ND 20	ND 20					
	SSDC 1	5-7	ND 5	8,630	2,710	2,160					
	SSDC 1	10-12	ND 1	410							
	SSDC 4	5-7	3.4	3,100 (3,600)	3,817	3,700					
	SSDC 4	10-12A	ND 1	34							
	SSDC 4	10-12B	ND 1	82							
	SSDC 4	15-17	ND 1	ND 10	56	ND 20					
January 7, 1986											
	SSDC 4	Ground Water	ND 10 (1)		33	80	42 ppb	ND 25 ppb	ND 0.03	ND 0.006	
FURNACE AREA											
January 16, 1985											
	SSD 11	surface	ND 10								
	SSD 12	surface	ND 20								
	SSD 13	surface	ND 10								
October 23-31, 1985											
	SSD 17	0-1	ND 0.5 (1)	9,210	11,561 (9,446)	1,765 (1,680)	31.8	ND 0.5	20	0.5	ND 0.32
	SSD 17	S	28	16,000	22,553						
	SSD 17	5-7		20,800							
	SSD 18	0-1	320	16,300							
	SSD 19	0-1	37.4	4,330	ND 20	ND 20					
	SSD 19	1-2	32 (39)	1,700							
	SSD 19	2-3	ND 1.0	130 (23)							
INCOMING DRUM STORAGE AREA											
October 23-31, 1985											
	SSD 9	0-1	23	10,700							
	SSD 9	1-2	ND 1	410							
	SSD 9	2-3		480							
	SSD 9	5-7		120							
	SSD 12	0-1	6	100	52	191	9.13	ND 0.5			
	SSD 12	1-2		42							
	SSD 12	2-3		120							
	SSD 13	0-1	55	8,260	1,049	2,440	27.01	ND 0.5			
	SSD 13	1-2	ND 5	1,350							
	SSD 15	0-1	8	1,820 (1,820)							
	SSD 15	5-7		3,740	147	2,340	31.24	ND 0.5			
	SSD 15	9-11		5,230							

Notes: (1) PCB results are part of the priority pollutant-base neutral scan for the sample listed.
Sample SSD17/S is a field duplicate of sample SSD17/0-1.
ND = Not detected at or above minimum detection limit indicated.
Laboratory duplicates in parentheses.
If no entry, analysis was not requested.

Table II (cont.)
Summary of Sample Results by Area
Concentrations for PCB's, TPHC's, VOC's, Base Neutrals, Acid Extractables, Phenol, Cyanide & Dioxin
Sayanne Barrel & Drum Company

PARAMETER: (units)	Sample No.	Sample Depth (ft)	PCB's (ppm)	TPHC's (ppm)	VOC's PRIORITY (Total) (ppb)	VOC's NON PRIORITY (ppb)	B/N (Total) (ppm)	AE (Total) (ppm)	PHENOL (ppm)	CYANIDE (ppm)
Sample Date										
OIL STORAGE TANKS AREA										
October 25-31, 1985										
	SSD 16	1-2	- 213 (229)	20600	1817	2640				
	SSD 16	5-8 & 8-10		410 -	30	166	ND 9.50	ND 4.80	2.8	ND 0.1
	SSDS 1	surface	- 130	23700 -						
	SSDV 1	surface	ND 1	670 -						
November 27 - December 17, 1985										
	SSDC 3	0.5-2.5 & 2.5-4.5	- 43 (57)	5920 -						
	SSDC 3	5-7	- 141	39000 -	6315	12230				
	SSDC 3	10-12	ND 1	190 -						
	SSDC 3	15-17	ND 1	28	ND 20	ND 20				
	SSDC 3	20-22	ND 1	58	ND 20	ND 20				
January 7, 1986										
	SSDC 3	Ground Water	ND 1 (ppb)	4.8 -						
	SSDC 5	Ground Water	-53 (ppb)	2000 -						
			-60 (1)							
DRUM STORAGE AND BACKGROUND AREAS										
October 25-31, 1985										
	SSD 1	0-1		1990 -	ND 20	ND 20				
	SSD 1	1-2		1480 -						
	SSD 1	2-3		530 -						
	SSD 3	0-1	- 42	4410						
	SSD 3	1-2	- 23 (21)	9630 (7290)						
	SSD 3	2-3		7640						
	SSD 8	0-1		3470 -	ND 20	ND 20				
	SSD 8	1-2	5	31200 -						
	SSD 8	2-3		173000 -						
	SSD 10	0-1		580						
	SSD 10	2-3		230						
	SSD 11	0-1		4450						
	SSD 11	1-2		760						
	SSD 11	2-3		450						
	SSD 14	0-1		460	ND 20	ND 20	830	ND 10	ND 0.5	ND 0.1
November 27 - December 17, 1985										
	SSDC 2	5-7	2	670	121 (133)	250 (280)				
	SSDC 2	10-12	ND 1	14	ND 20	36				
BUILDINGS										
October 25-31, 1985										
	SSDS 2	surface	80		ND 20	ND 20				
	SSDS 3	surface		850						
	SSDS 4	surface	11.1	89400	98	47				

Notes: (1) Concentration (ppm) in sediments filtered out of sample.
ND - data ... ed.

Summary of Polychlorinated Biphenyls, Total Petroleum Hydrocarbon & Dioxin
Concentrations in Soils January 18, October 25-31, 1985 and November 27 - December 17, 1985
Bayonne Barrel & Drum Company

PARAMETER (units):	PCB's (ppm)	PCB's (ppm) 10/25-31/85	Total Petroleum Hydrocarbons (ppm)	Dioxin (ppb)
Sample date:	1/18/85	11/27 - 12/17/85	10/25-31/85	10/25-31/85
Sample Designation/ Sample Depth (ft)				
BBD 11/0-1	- ND 10 (1)		- 4450	
BBD 11/1-2			- 760	
BBD 11/2-3			- 450	
BBD 12/0-1	- ND 20 (1)	- 6	100	
BBD 12/1-2			42	
BBD 12/2-3			- 120	
BBD 13/0-1	- ND 10 (1)	- 55	- 8260	
BBD 13/1-2		ND 5	- 1350	
BBD 14/0-1	- 65 (1)		- 460	
BBD 15/0-1		- 8	- 1820 (1820)	
BBD 15/5-7			- 3740	
BBD 15/9-11			- 5230	
BBD 16/1-2		- 213 (229)	- 20800	
BBD 16/5-6.8-10			- 410	
BBD 17/0-1		ND 0.5	- 9210	ND 0.320
BBD 17/5		- 28	- 16000	
BBD 17/5-7		--	- 20800	
BBD 18/0-1		- 320	16300	
BBD 19/0-1		- 37.4	- 4330	
BBD 19/1-2		- 32(39)	- 1700	
BBD 19/2-3		ND 1	- 130 (23)	
BBD C1/0-2		- 10.3(8.7)	- 830	
BBD C1/5-7		ND 5	- 8630	
BBD C1/10-12		ND 1	410	
BBD C2/5-7		2	870	
BBD C2/10-12		ND 1	14	
BBD C3/0.5-2.5, 2.5-4.5		- 43(57)	- 5920	
BBD C3/5-7		- 141	- 59000	
BBD C3/10-12		ND 1	190	
BBD C3/15-17		ND 1	28	
BBD C3/20-22		ND 1	58	
BBD C4/5-7		3.4	- 3100 (3600)	
BBD C4/10-12A		ND 1	34	
BBD C4/10-12B		ND 1	82	
BBD C4/15-17		ND 1	ND 10	

Note: (1) Samples BBD 11 - BBD 14, collected January 18, 1985, are surface soil samples.
Results for samples designated "BBD C" are for samples collected on 11/27 - 12/17/85.
ND = Not detected at or above minimum detection limit indicated
for [illegible] analysis as requested.

Table III

Summary of Polychlorinated Biphenyls, Total Petroleum Hydrocarbon & Dioxin

Concentrations in Soils January 18, October 25-31, 1985 and November 27 - December 17, 1985

Bayonne Barrel & Drum Company

PARAMETER (units): Sample date:	PCB's (ppm) 1/18/86	PCB's (ppm) 10/25-31/85	Total Petroleum Hydrocarbons (ppm) 10/25-31/85
ple No./ ple Depth (ft)			
1/0-1	- 15		- 1990
1/1-2			- 1480
1/2-3			- 530
2/0-1	- ND 10		- 1390
2/1-2			- 810
2/2-3			- 1130
2/5-7			- 610
3/0-1	- ND 10	- 42	- 4410
3/1-2		- 23 (21)	- 9630 (7290)
3/2-3			- 7440
1/0-1	- ND 10		- 6040
1/1-2			- 10500
1/2-3			- 15100
1/5-7			- 1190 (900)
1/9-11			940
5/0-1	- 16		- 23800
5/1-2			- 1040
5/2-3			9180
6/0-1	- ND 10		640 (650)
6/1-2			2440
6/2-3			5900
7/0-1	- ND 10		4520
8/0-1	- ND 15		3470
8/1-2		5	31200
8/2-3			173000
9/0-1	- 17	- 23	10700
9/1-2		ND 1	410
9/2-3			480
9/5-7			120
10/0-1			580
10/2-3			230

Note: Samples 9, [illegible] are split spoon samples taken from a depth of 0-2 feet.

Table IV
Summary of Volatile Organic Compound
Concentrations in Soils
October 25-31, 1985
Bayonne Barrel & Drum Company

Sample No.	BDD 1	BDD 2	BDD 4	BDD 8	BDD 12	BDD 13	BDD 13	BDD 14
Sample Depth (ft):	0-1	0-1	0-1	0-1	0-1	0-1	4 (field blank)	0-1
PRIORITY POLLUTANTS (ppb)								
Acrolein (ppm)			ND 1					ND 1
Acrylonitrile (ppm)			ND 1					ND 1
Vinyl Chloride	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 5	ND 20
Chloroethane								
Methylene Chloride								
1,1-Dichloroethylene								
1,1-Dichloroethane								
1,2-Dichloroethylene								
Chloroform								
1,2-Dichloroethane								
1,1,1-Trichloroethane								
1,2-Dichloropropane								
Trichloroethylene			ND 20			ND 20		
Benzene			55			29		
1,1,2-Trichloroethane			ND 20			ND 20		
1,1,2,2-Tetrachloroethylene			ND 20			ND 20		
Toluene			360			210		
Chlorobenzene			ND 20		ND 20	ND 20		
Ethylbenzene			8600		52	810		
1,2 & 1,4-Dichlorobenzene	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 5	ND 20
Total Priority Pollutants	ND 20	ND 20	9015	ND 20	52	1049	ND 5	ND 20

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table IV (cont.)
Summary of Volatile Organic Compound
Concentrations in Soils
October 25-31, 1985
Bayonne Barrel & Drum Company

Sample No.	BDD 1	BDD 2	BDD 4	BDD 8	BDD 12	BDD 13	BDD 13	BDD 14
Sample Depth (ft):	0-1	0-1	0-1	0-1	0-1	0-1	4 (field blank)	0-1
ON PRIORITY POLLUTANTS (ppb)								
-Butanol	ND 20	ND 20	50	ND 20	ND 20	ND 20	ND 5	ND 20
opropylcyclopropane			ND 20		ND 20	ND 20		
lenes			28000		ND 20	ND 20		
-Xylene			28000		38	1500		
p-Xylene			ND 20		47	1200		
clopropane					ND 20	ND 20		
tone								
ethyl Sulfide								
opropanol								
rbon Disulfide								
thyl Ethyl Ketone								
on 113								
hexane								
ene								
thyl Isobutyl Ketone								
Methyl-2-Pentanol								
H12 Aliphatic Hydrocarbons			ND 20			ND 20		
H11 Aliphatic Hydrocarbons			190			70		
H16 Aliphatic Hydrocarbons			35			ND 20		
H16 Aliphatic Hydrocarbons			30		ND 20	ND 20		
H10 Aromatic Hydrocarbons			2600		75	150		
H12 Aromatic Hydrocarbons			430		31	130		
H12 Aromatic Hydrocarbons			3400		ND 20	330		
H12 Aromatic Hydrocarbons			ND 20			60		
H12 Aromatic Hydrocarbons			3300			ND 20		
H14			ND 20					
H20			ND 20					
yrene	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 5	ND 20
otal Non Priority Pollutants	ND 20	ND 20	66035	ND 20	191	3440	ND 5	ND 20

otes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table IV (cont.)
Summary of Volatile Organic Compound
Concentrations in Soils
October 25-31, 1985
Bayonne Barrel & Drum Company

Sample No.	BBD 15	BBD 15	BBD 16	BBD 16	BBD 17	BBD 17	BBD 17	BBD 19	BBD 20
Sample Depth (ft):	5-7	15 (Field Blank)	1-2	5-8 8-10	0-1	0-1 (Lab Dup)	S	0-1	Water (Field Blank)
PRIORITY POLLUTANTS (ppb)									
Acrolein (ppm)				ND 1	ND 1				
Acrylonitrile (ppm)				ND 1	ND 1				
Vinyl Chloride	ND 20	ND 5	ND 20	ND 20	89	170	170	ND 20	ND 5
Chloroethane					ND 20	ND 20	33		
Methylene Chloride					130	91	740		
1,1-Dichloroethylene					ND 20	ND 20	28		
1,1-Dichloroethane					250	210	1000		
1,2-Dichloroethylene					150	120	1100		
Chloroform					41	21	100		
1,2-Dichloroethane					36	32	78		
1,1,1-Trichloroethane					510	211	850		
1,2-Dichloropropane					ND 20	ND 20	52		
Trichloroethylene	ND 20		ND 20	ND 20	240	210	830		
Benzene	60		57	30	130	87	220		
1,1,2-Trichloroethane	ND 20		ND 20	ND 20	100	92	220		
1,1,2,2-Tetrachloroethylene			ND 20		94	71	290		
Toluene			930		7500	6400	14000		
Chlorobenzene	ND 20		ND 20		30	22	49		
Ethylbenzene	87		830		2200	1600	2700		
1,2 & 1,4-Dichlorobenzene	ND 20	ND 5	ND 20	ND 20	61	79	93	ND 20	ND 5
Total Priority Pollutants	147	ND 5	1817	30	11561	9446	22553	ND 20	ND 5

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table IV (cont.)
Summary of Volatile Organic Compound
Concentrations in Soils
October 25-31, 1985
Dayonne Barrel & Drum Company

Sample No.	BDD 15	BDD 15	BDD 16	BDD 16	BDD 17	BDD 17	BDD 17	BDD 19	BDD 20
Sample Depth (ft):	5-7	15 (Field Blank)	1-2	5-8	0-1	0-1 (Lab Dup)	S	0-1	Water (Field Blank)
PRIORITY POLLUTANTS (ppb)									
1-Butanol	ND 20	ND 5	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 5
Isopropylcyclopropane			ND 20	ND 20			ND 20		
Xylenes			ND 20	ND 20			ND 20		
m-Xylene			1400	43			3900		
p-Xylene			1200	23			3400		
Cyclopropane			ND 20	ND 20	ND 20	ND 20	30		
Acetone					130	130	70		
Dimethyl Sulfide					ND 20	ND 20	30		
Isopropanol					ND 20	ND 20	50		
Carbon Disulfide					30	15	50		
Methyl Ethyl Ketone					170	140	110		
Freon 113					ND 20	ND 20	20		
Cyclohexane					40	20	50		
Hexane					25	15	25		
Methyl Isobutyl Ketone					730	500	550		
4-Methyl-2-Pentanol					160	85	140		
C9H12 Aliphatic Hydrocarbons				ND 20	30	35	100		
C7H11 Aliphatic Hydrocarbons				70	40	80	120		
C7H16 Aliphatic Hydrocarbons				ND 20	ND 20	ND 20	ND 20		
C8H18 Aliphatic Hydrocarbons	ND 20			30	ND 20	ND 20	ND 20		
C8H10 Aromatic Hydrocarbons	300		ND 20	ND 20	ND 20	ND 20	ND 20		
C8H12 Aromatic Hydrocarbons	910		40		40	35	60		
C9H12 Aromatic Hydrocarbons	580		ND 20		60	55	80		
C9H12 Aromatic Hydrocarbons	550				190	200	300		
C9H12 Aromatic Hydrocarbons	ND 20				120	90	150		
C10H14					ND 20	ND 20	ND 20		
C10H20					ND 20	ND 20	ND 20		
Styrene	ND 20	ND 5	ND 20	ND 20	ND 20	280	450	ND 20	ND 5
Total Non Priority Pollutants	2340	ND 5	2640	166	1765	1680	9685	ND 20	ND 5

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table IV (cont.)
Summary of Volatile Organic Compound
Concentrations in Soils
November 27 - December 17, 1985
Bayonne Barrel & Drum Company

Sample No.	BBD C1	BBD C1	BBD C2	BBD C2 (Lab Dup)	BBD C2	BBD C3	BBD C3	BBD C3	BBD C4	BBD C4
Sample Depth (ft):	0-2	5-7	5-7	5-7	10-12	5-7	15-17	20-22	5-7	15-17
PRIORITY POLLUTANTS (ppb)										
Acrolein (ppm)										
Acrylonitrile (ppm)										
Vinyl Chloride	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
Chloroethane										
Methylene Chloride										
1,1-Dichloroethylene										
1,1-Dichloroethane										
1,2-Dichloroethylene										
Chloroform										
1,2-Dichloroethane										
1,1,1-Trichloroethane										
1,2-Dichloropropane										
Trichloroethylene		ND 20	ND 20	ND 20		ND 20			ND 20	ND 20
Benzene		410	50	51		265			90	26
1,1,2-Trichloroethane		ND 20	ND 20	ND 20		ND 20			ND 20	ND 20
1,1,2,2-Tetrachloroethylene			ND 20	ND 20		ND 20			ND 20	ND 20
Toluene			71	84		1700			2200	20
Chlorobenzene		ND 20	ND 20	ND 20		330			650	ND 20
Ethylbenzene		2300	ND 20	ND 20		3700			790	10
1,2 & 1,4-Dichlorobenzene	ND 20	ND 20	ND 20	ND 20	ND 20	320	ND 20	ND 20	87	ND 20
Total Priority Pollutants	ND 20	2710	121	135	ND 20	6315	ND 20	ND 20	3817	56

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table IV (cont.)
Summary of Volatile Organic Compound
Concentrations (ppb) in Soils
November 27 - December 17, 1985
Bayonne Barrel & Drum Company

Sample No.	BBD C1	BBD C1	BBD C2	BBD C2	BBD C2	BBD C3	BBD C3	BBD C3	BBD C1	BBD C1
Sample Depth (ft):	0-2	5-7	5-7	5-7 (Lab Dup)	10-12	5-7	15-17	20-22	5-7	15-17
J PRIORITY POLLUTANTS (ppb)										
	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
butanol		ND 20	ND 20	ND 20		ND 20			70	
opropylcyclopropane		800	130	140		9600			4300	
lenes		ND 20	ND 20	ND 20		ND 20			ND 20	
Xylene										
p-Xylene										
clopropane										
tone										
ethyl Sulfide										
				ND 20	ND 20				ND 20	
opropanol				20	36				40	
thyl Disulfide				ND 20	ND 20				ND 20	
thyl Ethyl Ketone									ND 20	
ene 113									50	
									ND 20	
clohexane			ND 20	ND 20						
zene			120	120						
thyl Isobutyl Ketone			ND 20	ND 20						
Methyl-2-Pentanol										
						ND 20			ND 20	
H12 Aliphatic Hydrocarbons						200			150	
H11 Aliphatic Hydrocarbons						ND 20			30	
H16 Aliphatic Hydrocarbons						ND 20			ND 20	
H18 Aliphatic Hydrocarbons		ND 20								
									80	
H10 Aromatic Hydrocarbons		1100				330			800	
H12 Aromatic Hydrocarbons		ND 20				2000			ND 20	
H12 Aromatic Hydrocarbons		ND 20				ND 20				
H12 Aromatic Hydrocarbons		ND 20				ND 20				
						ND 20				
H12 Aromatic Hydrocarbons		260				100				
10H14		ND 20				100			ND 20	
10H19						ND 20			180	
10H20										
tyrene	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20	ND 20
otal Non Priority Pollutants	ND 20	2160	250	280	36	12230	ND 20	ND 20	5700	ND 20

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table V
Summary of Metals, Phenol, Cyanide & Pesticides Concentrations
in Soils January 18, 1985 and October 25-31, 1985
Bayonne Barrel & Drum Company

Sample No.	BBD10	BBD 4	BBD 8	BBD 11	BBD 14	BBD 15	BBD 16	BBD 17
Sample Depth (ft):	(notes)	0-1	0-1	0-1	0-1	0-1	5-8 8-10	0-1
METALS (ppm)								
Antimony		13			8.4		4.0	6.0
Arsenic	0.002	17	- 390	- 51	8.4	- 55	2.9	- 56
Barium	ND 1.0		22	10		10		
Beryllium		0.64			0.28		0.32	0.5
Cadmium	0.21	1300	- 34	- 4.72	0.52	- 5.08	0.2	- 6.56
Chromium	ND 0.02	- 3400	- 1900	43.2	27	52.0	7.0	- 2300
Copper		-15500			15.6		4.64	128
Lead	2.6	- 8400	- 8400	- 380	92	- 6400	15	- 370
Mercury	0.0004	- 2.2	- 13.6	- 1.3	- 1.6	- 4.1	0.62	- 1.6 (2.3)
Nickel		62.4			25		5.28	36.8
Silver	ND 0.02	0.92	3.1	0.48	0.3	0.84	0.2	1.7
Selenium	0.001	0.03	0.046	0.004	0.019	0.042	ND 0.004	0.023
Thallium		ND 0.4			ND 0.4		ND 0.4	ND 0.4
Zinc		- 4520			71.2		15.4	- 5040
Phenol (ppm)		15			ND 0.5		2.8	20
Cyanide (ppm)		2			ND 0.1		ND 0.1	0.5
PESTICIDES (ppb)								
Endrine	ND 1.0							
Lindane	ND 1.0							
Methoxychlor	ND 1.0							
Toxaphene	ND 1.0							
2,4-D	ND 1.0							
2,4,5-TP Silvex	ND 1.0							

Notes: Sample BBD 10, collected January 18, 1985, from furnace residue pile, is a composite sample analyzed for EP Toxicity.
ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table VI
Summary of Base/Neutral - Pesticide Extractable
& Acid Extractable Compounds Concentrations in Soils
October 25-31, 1985

Sample No.	BDD 4	BDD 14	BDD 16	BDD 17	BDD 12	BDD 13	BDD 15
Sample Depth (ft):	0-1	0-1	5-8 8-10	0-1	0-1	0-1	0-1
BASE/NEUTRAL - PESTICIDES (ppm)							
Benzyl Butyl Phthalate	ND 2.60		ND 4.80	19.3	ND 0.5	ND 0.5	ND 0.5
Di-n-Butylphthalate				17.0	ND 0.5	ND 0.5	ND 0.5
2-Methyl Naphthalene				15.5	0.68	1.5	ND 0.5
Anthracene				ND 0.5	ND 0.5	0.65	1.0
Benzo(b)fluoranthene					ND 0.5	0.91	1.9
Benzo(a)pyrene					ND 0.5	1.3	2.3
Bis(2-Ethylhexyl)phthalate		410			7.25	6.3	2.8
Chrysene					ND 0.5	2.3	2.9
2,6-Dinitrotoluene						1.9	ND 0.5
Fluoranthene						2.5	5.2
Fluorene					ND 0.5	0.63	ND 0.5
Naphthalene		420			1.2	1.7	ND 0.5
Phenanthrene					ND 0.5	2.8	4.7
Pyrene						4.0	5.8
1,2-Diphenylhydrazene						0.52	ND 0.5
Benzo(a)anthracene						ND 0.5	2.9
Benzo(ghi)perylene						ND 0.5	0.87
Indeno(1,2,3-cd)pyrene				ND 0.5	ND 0.5	ND 0.5	0.87
Total Base/Neutral & Pesticides	ND 2.60	(830)	ND 4.80	(51.8)	9.13	(27.01)	(31.24)
Total ACID EXTRACTABLES (ppm)	ND 0.640(1)		ND 9.50(1)	ND 0.5	ND 0.5	ND 0.5	ND 0.5

Notes: ND = not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table VII
Summary of Polychlorinated Diphenyls, Total Petroleum Hydrocarbons
& Volatile Organic Compound Concentrations
In Surface Sediment & Surface Water Samples
October 25-31, 1985
Bayonne Barrel & Drum Company

	Sediments				Water
Sample No.:	BBD S1	BBD S2	BBD S3	BBD S4	BBD W1
PARAMETER	Concentrations (ppm)				
PCB's	130	80		11	ND 1
Total Petroleum Hydrocarbons	23700		850	39400	670
PARAMETER	Concentrations (ppb)				
Volatile Organic Compounds					
Priority Pollutants		ND 20			ND 5
Toluene		ND 20		39	
Non Priority Pollutants		ND 20			
Acetone				25	
4-Methyl-2-Pentanol				20	

Notes: ND = Not detected at or above minimum detection limit indicated.
If no entry, analysis was not requested.

Table VIII
Summary of Polychlorinated Biphenyls , Total Petroleum Hydrocarbons, Metals,
Acid Extractables, Base Neutrals, Phenol & Cyanide
Concentrations in Ground Water
January 7,1986
Bayonne Barrel & Drum Company

mple No.:	BDD C1	BDD C2	BDD C3	BDD C4	BDD C5	BDD C6
ASURER (units)						
B's (ppb)	ND 1	ND 1	ND 1	ND 10 (1)	53 80 (2)	ND 1
tal Petroleum drocarbons (ppm)	2.8	3.7	4.8		2000	1.8
METAL CONSTITUENTS	Concentrations (ppm)					
timony				ND 0.5		
senic				0.01		
ryllium				ND 0.01		
dmium				ND 0.01		
romium				ND 0.01		
pper				0.04		
ad				ND 0.1		
rcury				ND 0.002		
ckel				ND 0.01		
lenium				ND 0.007		
ver				0.03		
allium				ND 0.1		
c				0.03		
ANIDES (units)						
e/Neutrals (ppb)						
-N-Butylphthalate				28		
phthalene				14		
d Extractables (ppb)				ND 25		
nol (ppm)				ND 0.03		
nide (ppm)				ND 0.004		

es: (1) PCB results are part of the priority pollutant - Base Neutral scan for the sample listed.
(2) Concentration (ppm) in sediments filtered out of water sample.
ND = Not detected at or above minimum detection limit indica
If ntry, analysis was not requested.

Table IX
Summary of Volatile Organic Compound Concentrations in Ground Water
January 7, 1986
Bayonne Barrel & Drum Company

ample No.:	BDD C1	BDD C2	BDD C3	BDD C4	BDD C5	BDD C6
ONSTITUENTS	Concentrations (ppb)					
RIORITY POLLUTANTS (ppb)						
hloroform	ND 5	ND 5	25	ND 5	ND 5	ND 5
,1,1-Trichloroethane		5 (ND 5)	ND 5	ND 5		
romodichloromethane		ND 5	5	ND 5		
enzene			ND 5	28	ND 5	
oluene				5	150	
hlorobenzene				ND 5	67	
thylbenzene				ND 5	1060	
,2 & 1,1-Dichlorobenzene	ND 5	ND 5	ND 5	ND 5	76	ND 5
otal Priority Pollutants	ND 5	5	30	33	1353	ND 5
E. PRIORITY POLLUTANTS (ppb)						
hlorofluoromethane	10	ND 5	ND 5	ND 5	ND 5	ND 5
richlorofluoromethane	70	ND 5		ND 5		
-Isopropylether	15	ND 5		ND 5		
ethylether	ND 5	10 (20)		30		
,1,1-Trimethylpentene		10 (10)		ND 5	ND 5	
ylene Isomers		ND 5		15	2000	
yclohexane				ND 5	60	
thylcyclopentane					30	
ycloheptane					100	
sopropylbenzene					90	
-Propylbenzene				ND 5	150	
thyl Toluene Isomers				35	550	
imethylbenzene Isomers				ND 5	1400	
2010 Isomers	ND 5	ND 5	ND 5	ND 5	240	ND 5
otal Non Priority Pollutants	95	20 (30)	ND 5	80	4620	ND 5

tes: ND = Not detected at or above minimum detection limit indicated.
Laboratory duplicates in parentheses.
If no entry, analysis was not requested.

Appendices

Appendix A

Well Construction Diagrams

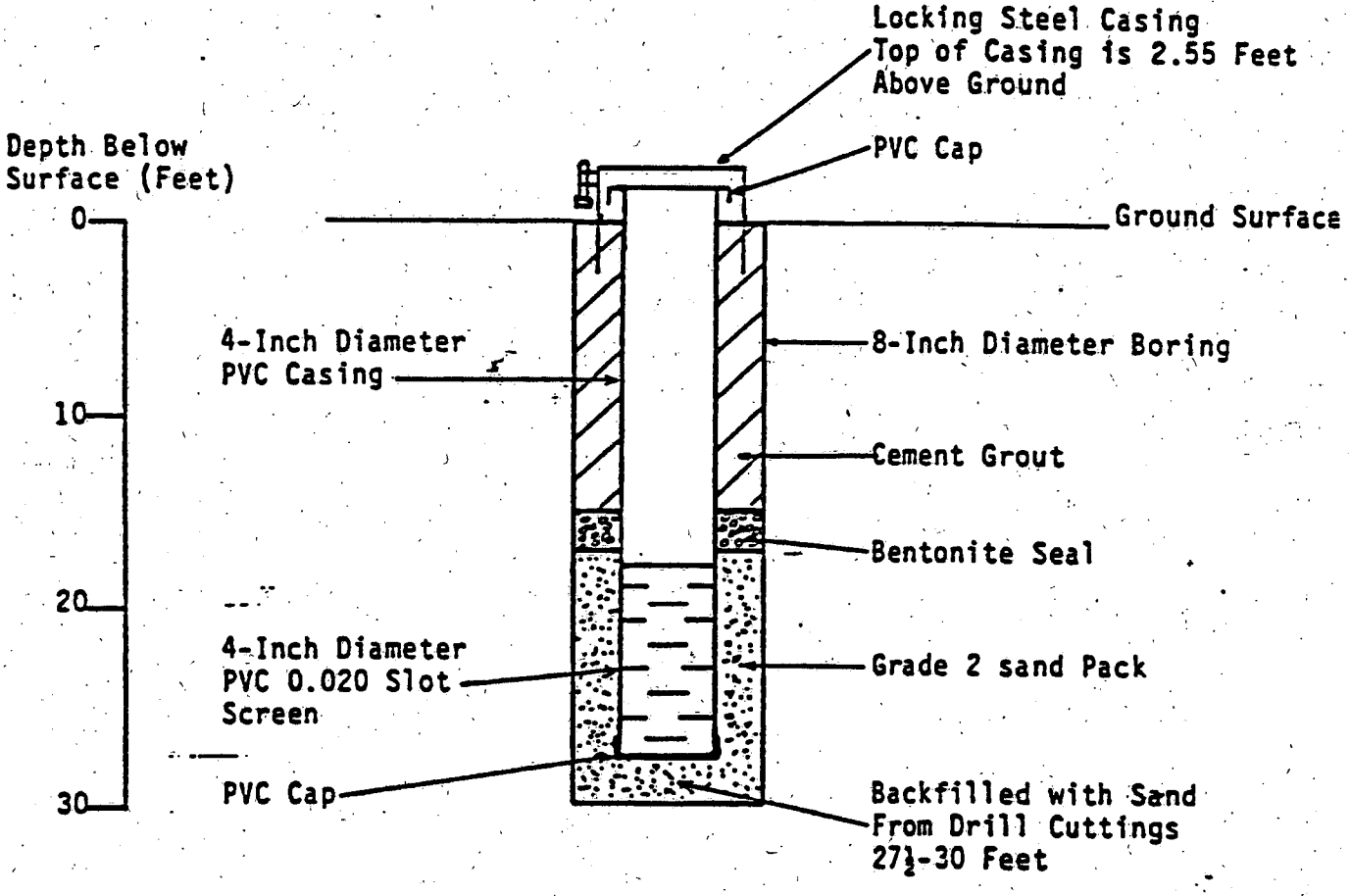
Dan Raviv Associates, Inc.

Job No. 84C182

PROJECT Bayonne Barrel and Drum Company SUBJECT Monitoring Wells

COMPUTATION Construction Details-BBDC1

COMPUTED BY _____ DATE 12/26/85 CHECKED BY _____ DATE _____



Total Depth Drilled 30 Feet
Total Depth Cased 27½ Feet

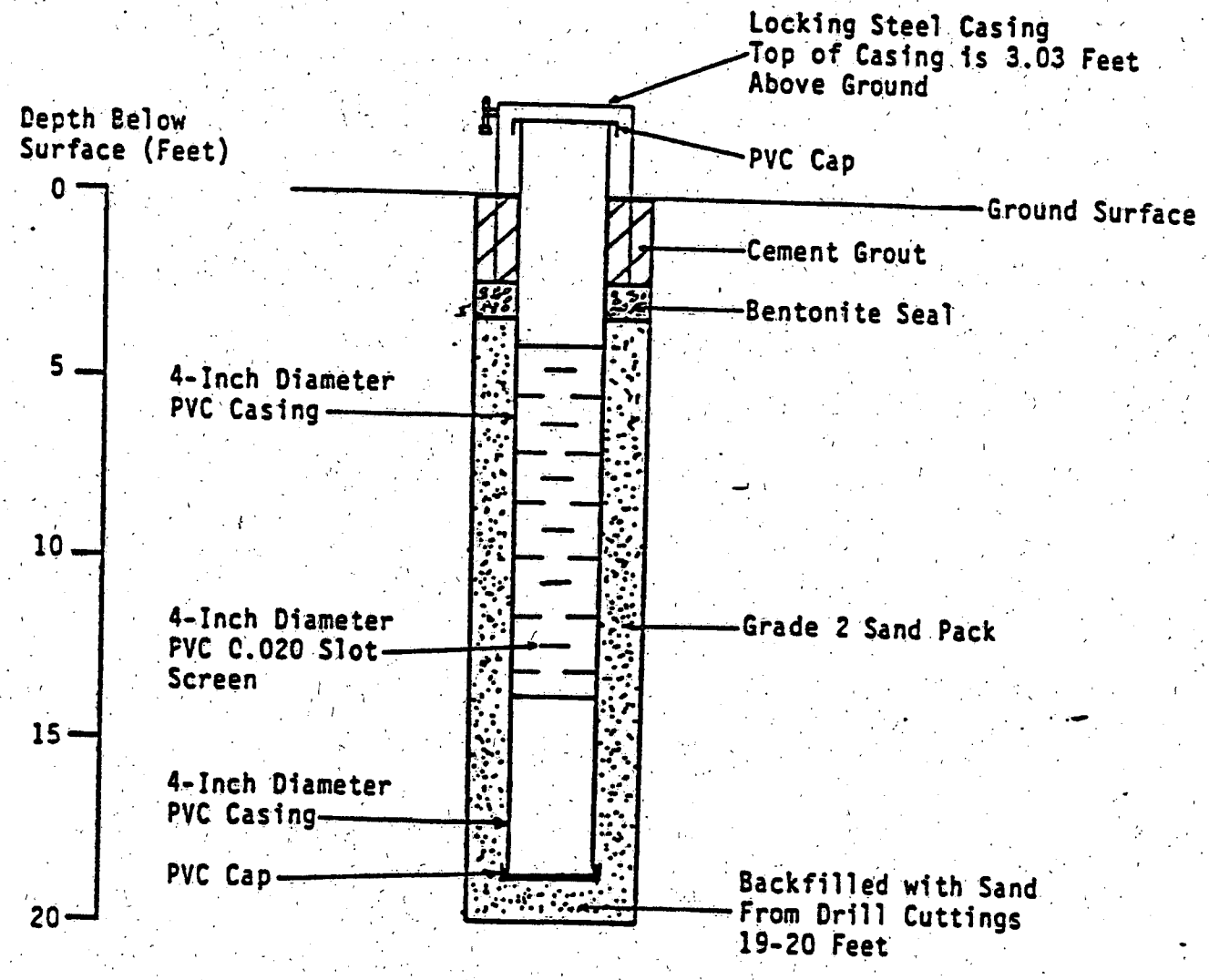
Dan Raviv Associates, Inc.

Job No. 84C182

PROJECT Bayonne Barrel and Drum Company SUBJECT Monitoring Wells

COMPUTATION Construction Details-BBDC2

COMPUTED BY _____ DATE 12/26/85 CHECKED BY _____ DATE _____

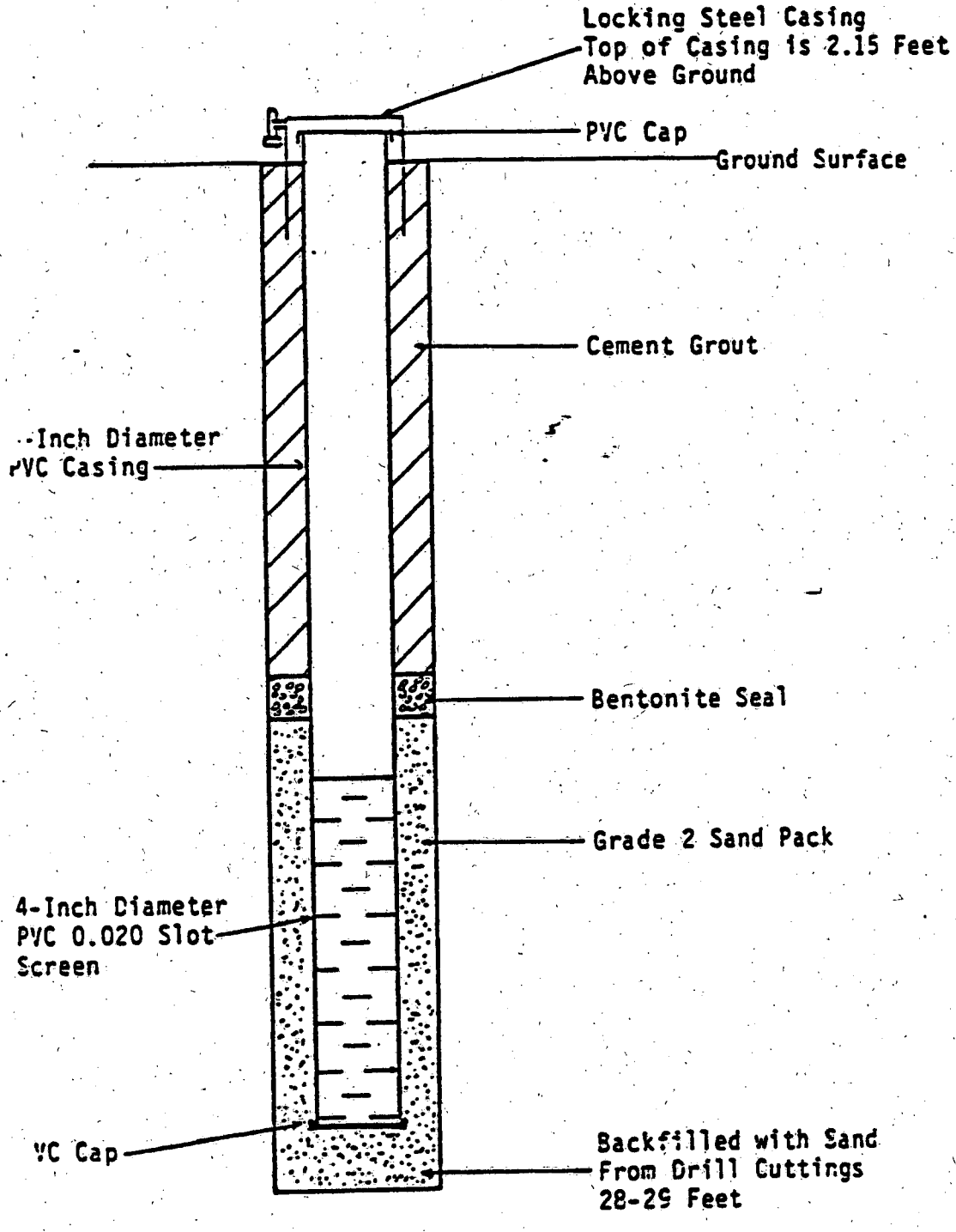


Total Depth Drilled 20 Feet
Total Depth Cased 19 Feet

ne Barrel and Drum Company SUBJECT Monitoring Wells

Construction Details-B80C4

DATE 12/26/85 CHECKED BY DATE



Total Depth Drilled 30 Feet
Total Depth Cased 28 Feet

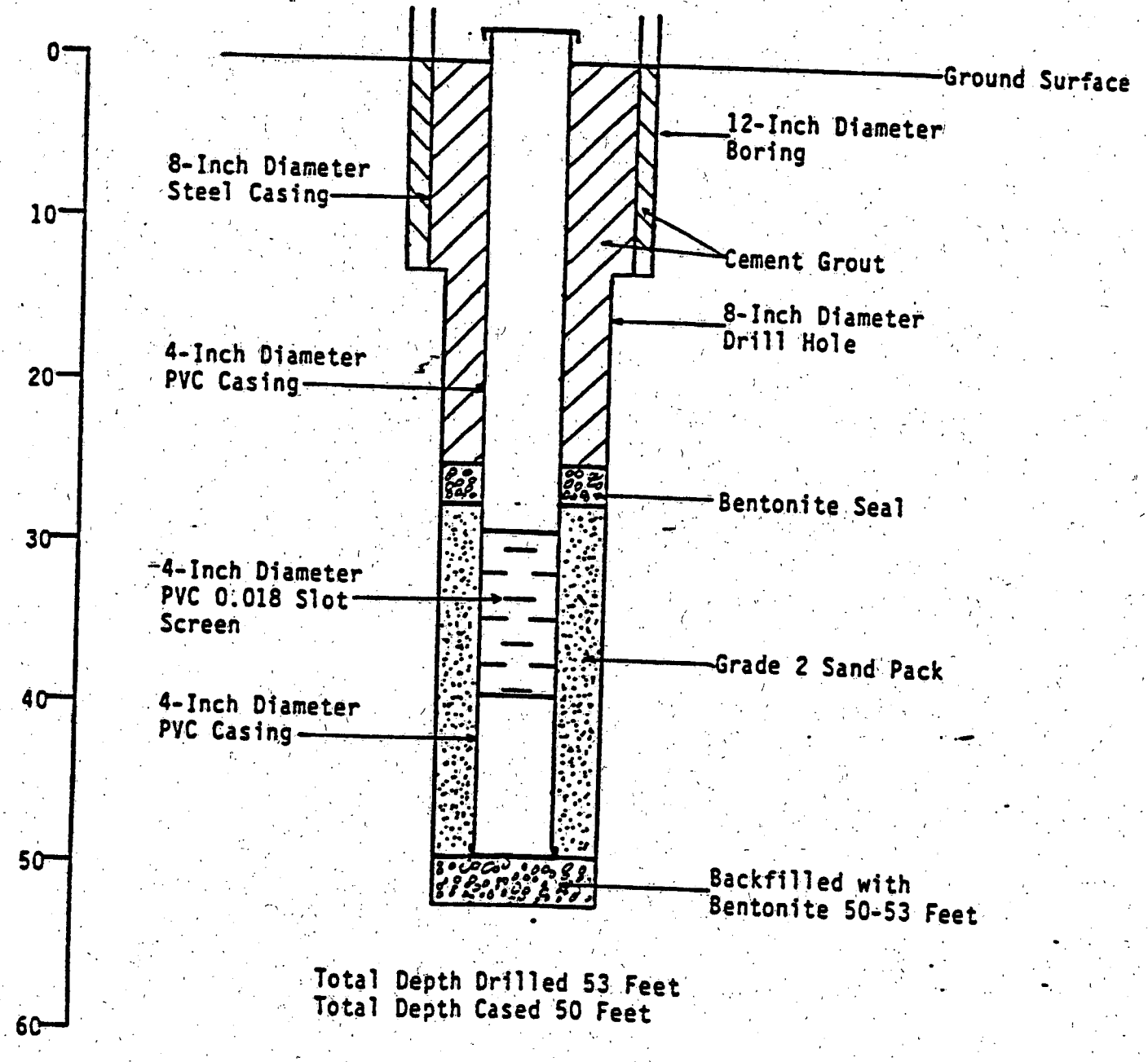
Dan Raviv Associates, Inc.

Job No. 84C182

PROJECT Bayonne Barrel and Drum Company SUBJECT Monitoring Wells

COMPUTATION Well Construction Details-page2

COMPUTED BY _____ DATE 12/26/85 CHECKED BY _____ DATE _____



Total Depth Drilled 53 Feet
Total Depth Cased 50 Feet

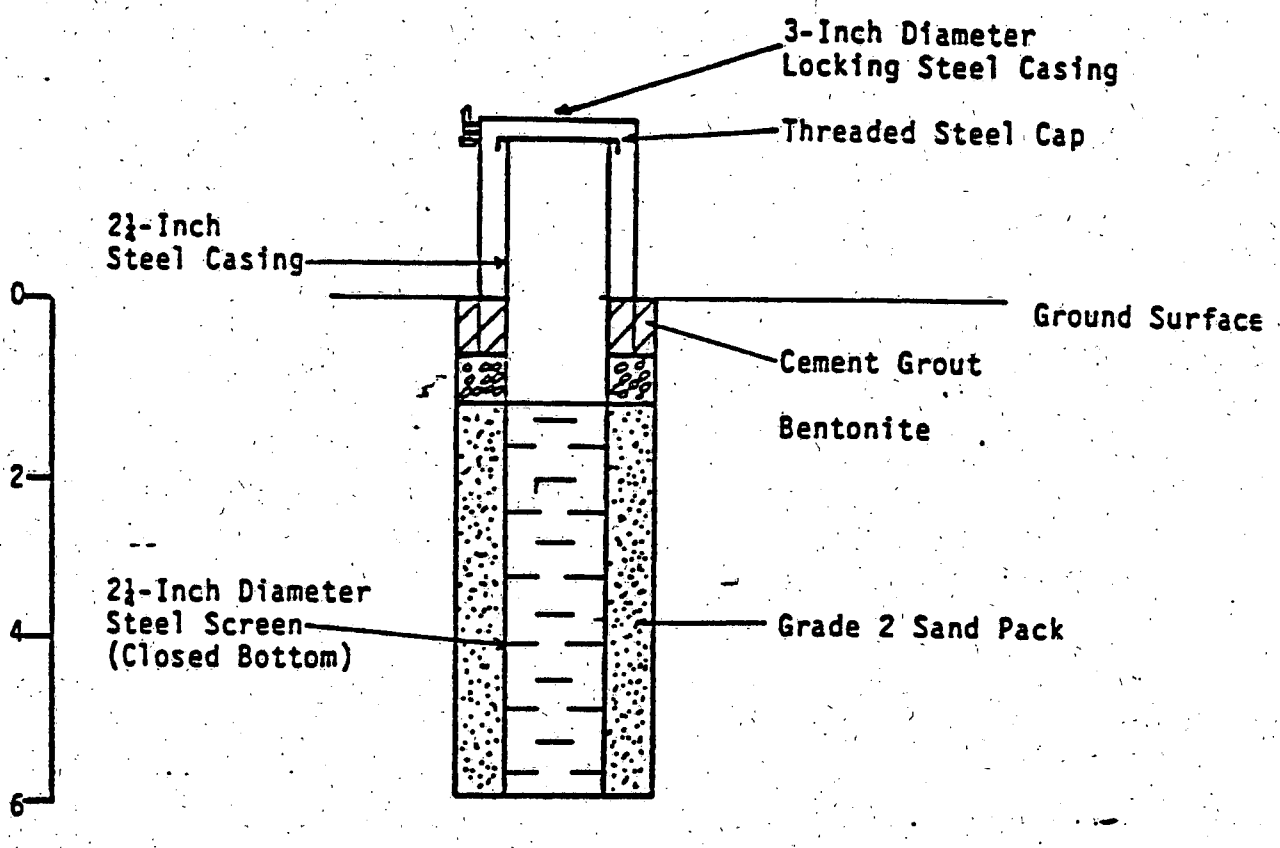
Dan Raviv Associates, Inc.

Job No. 84C182

PROJECT Bayonne Barrel and Drum Company SUBJECT Monitoring Wells

COMPUTATION Well Construction Details-BBDC5

COMPUTED BY _____ DATE 12/26/85 CHECKED BY _____ DATE _____



Total Depth Drilled 6 Feet
Total Depth Cased 6 Feet

Appendix B

Well Logs

Appendix B

Well Logs

Dan Raviv Associates, Inc. West Orange, N.J. DETAILED DRILL LOG	PROJECT NAME	TEST HOLE NUMBER
	PROJECT/JOB NUMBER	SHEET 2 of 4
DRILLING COMPANY	SITE	LOCATION
NAME OF DRILLER	LOGGED BY: / CHECKED BY:	ELEVATION
DRILL MANUFACTURER AND MODEL NUMBER	DEPTH TO GROUNDWATER/DATE 6.35'	ORIENTATION Vertical
SIZE AND TYPE OF BIT (S) 10" O.D.	TOTAL DEPTH OF HOLE 20' / TOTAL CORE RECOVERY	DATE STARTED / DATE COMPLETED

Depth	Drilling & Sampling	Recovery		Remarks	Graphic Log	Classification of Materials (Description)
0–5	SS	0	0%			0-5' AUGER CUTTINGS DISPLAY
5	SS	1/3	15%	WATER ENCOUNTERED AT 7'		5-7' MOIST, DARK BROWN GRANULATED FILL
10	SS	1	50%			10-12' BLACK, RED-BROWN, FINE TO MEDIUM GRAIN SAND WITH SOME COBBLES
15–20				FLUSHED BORING FROM 20' FLUSH WATER BROUGHT UP DARK RED-BROWN, FINE-MEDIUM GRAIN SAND		12-20' BLACK RED-BROWN, FINE TO MEDIUM GRAIN SAND
				4-14' SCREENED TD = 20' TD casing = 20'		

(TITLE PAGE)

Analytical Data Report Package

for

New Jersey Department of Environmental Protection

Hazardous Site Mitigation Administration

CN-029

Trenton, N. J. 08625

Case Name	Field Sample #	Laboratory Sample #	Sample Location	Date and Time of Sample Collection
GOLLOB Analytical Service	59411 BBD 17/1'	23217		

Lab Name CALIFORNIA ANALYTICAL LAB, INC.

Certification # _____

Supervisor/Manager Signature Michael J. Miille

Name Michael J. Miille, Ph.D

QUALITY CONTROL SUMMARY

Case No. 23217

Mean Accuracy, Surrogate Measurements: 98% # of Data Points 2

Accuracy, Fortified/Spike Field Blank: — Sample # —

Rel. Diff. (%), Duplicate Analysis: — Sample # —

Prepared by: JW

Approved by: [signature]

Date 12/20/85

FORM B-3A

Base Neutral & Pesticide Extractables

Soil Samples

Milligrams/kilogram

Sample Identity:	BBD 13/1	BBD 15/1	BBD 12/1
Acenaphthene	ND 0.5	ND 0.5	ND 0.5
Acenaphthylene	ND 0.5	ND 0.5	ND 0.5
Anthracene	0.65	1.0	ND 0.5
Aldrin	ND 0.5	ND 0.5	ND 0.5
Benzo(a)anthracene	ND 0.5	2.9	ND 0.5
Benzo(b)fluoranthene	ND 0.91	1.9	ND 0.5
Benzo(k)fluoranthene	ND 0.5	ND 0.5	ND 0.5
Benzo(a)pyrene	1.3	2.3	ND 0.5
Benzo(ghi)perylene	ND 0.5	0.87	ND 0.5
Benzyl butyl phthalate	ND 0.5	ND 0.5	ND 0.5
β-BHC	ND 0.5	ND 0.5	ND 0.5
δ-BHC	ND 0.5	ND 0.5	ND 0.5
Bis(2-chloroethyl)ether	ND 0.5	ND 0.5	ND 0.5
Bis(2-chloroethoxy)methane	ND 0.5	ND 0.5	ND 0.5
Bis(2-ethylhexyl)phthalate	6.3	2.8	7.25
Bis(2-chloroisopropyl)ether	ND 0.5	ND 0.5	ND 0.5
4-Bromophenyl phenyl ether	ND 0.5	ND 0.5	ND 0.5
Chlordane	ND 0.5	ND 0.5	ND 0.5
2-Chloronaphthalene	ND 0.5	ND 0.5	ND 0.5
4-Chlorophenyl phenyl ether	ND 0.5	ND 0.5	ND 0.5
Chrysene	2.3	2.9	ND 0.5
4,4'-DDD	ND 0.5	ND 0.5	ND 0.5
4,4'-DDE	ND 0.5	ND 0.5	ND 0.5
4,4'-DDT	ND 0.5	ND 0.5	ND 0.5
Dibenzo(a,h)anthracene	ND 0.5	ND 0.5	ND 0.5
Di-n-butylphthalate	ND 0.5	ND 0.5	ND 0.5
1,3-Dichlorobenzene	ND 0.5	ND 0.5	ND 0.5
1,2-Dichlorobenzene	ND 0.5	ND 0.5	ND 0.5
1,4-Dichlorobenzene	ND 0.5	ND 0.5	ND 0.5
3,3'-Dichlorobenzidine	ND 0.5	ND 0.5	ND 0.5
Dieldrin	ND 0.5	ND 0.5	ND 0.5
Diethyl phthalate	ND 0.5	ND 0.5	ND 0.5
Dimethyl phthalate	ND 0.5	ND 0.5	ND 0.5
2,4-Dinitrotoluene	ND 0.5	ND 0.5	ND 0.5
2,6-Dinitrotoluene	1.9	ND 0.5	ND 0.5
Di-n-octylphthalate	ND 0.5	ND 0.5	ND 0.5
Endosulfan sulfate	ND 0.5	ND 0.5	ND 0.5
Endrin aldehyde	ND 0.5	ND 0.5	ND 0.5

Date Extracted:

Date Analyzed:

ND=None detected, less than

Milligrams/kilogram

Sample Identity:	BBD 13/1	BBD 15/1	BBD 12/1
Fluoranthene	2.5	5.2	ND 0.5
Fluorene	0.63	ND 0.5	ND 0.5
Heptachlor	ND 0.5	ND 0.5	ND 0.5
Heptachlor epoxide	ND 0.5	ND 0.5	ND 0.5
Hexachlorobenzene	ND 0.5	ND 0.5	ND 0.5
Hexachlorobutadiene	ND 0.5	ND 0.5	ND 0.5
Hexachloroethane	ND 0.5	ND 0.5	ND 0.5
Indeno(1,2,3-cd)pyrene	ND 0.5	0.87	ND 0.5
Isophorone	ND 0.5	ND 0.5	ND 0.5
Naphthalene	1.7	ND 0.5	1.2
Nitrobenzene	ND 0.5	ND 0.5	ND 0.5
N-Nitrosodi-n-propylamine	ND 0.5	ND 0.5	ND 0.5
PCB-1016	ND 0.5	ND 0.5	ND 0.5
PCB-1221	ND 0.5	ND 0.5	ND 0.5
PCB-1232	ND 0.5	ND 0.5	ND 0.5
PCB-1242	ND 0.5	ND 0.5	ND 0.5
PCB-1248	ND 0.5	ND 0.5	ND 0.5
PCB-1254	ND 0.5	ND 0.5	ND 0.5
PCB-1260	ND 0.5	ND 0.5	ND 0.5
Phenanthrene	2.8	4.7	ND 0.5
Pyrene	4.0	5.8	ND 0.5
Toxaphene	ND 0.5	ND 0.5	ND 0.5
1,2,4-Trichlorobenzene	ND 0.5	ND 0.5	ND 0.5
Benzidine	ND 0.5	ND 0.5	ND 0.5
α-BHC	ND 0.5	ND 0.5	ND 0.5
γ-BHC	ND 0.5	ND 0.5	ND 0.5
Endosulfan I	ND 0.5	ND 0.5	ND 0.5
Endosulfan II	ND 0.5	ND 0.5	ND 0.5
Endrin	ND 0.5	ND 0.5	ND 0.5
Hexachlorocyclopentadiene	ND 0.5	ND 0.5	ND 0.5
N-Nitrosodimethylamine	ND 0.5	ND 0.5	ND 0.5
N-Nitrosodiphenylamine	ND 0.5	ND 0.5	ND 0.5
1,2 Diphenyl Hydrazine	0.52		
2 Methyl Naphthalene	1.5		0.68

ND=None detected, less than

Gollob Analytical Service

MOLININI/GOLLOB A DIVISION OF ENSECO INCORPORATED
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

Dan Raviv Associates, Inc.
84C182
DEC 17 1985
RECEIVED

TO Dr. D. Raviv
Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 60700
(Formerly 59797)
Date Requested: 11/1/85
Date Reported: 4/15/86
P.O. No. 84C182

MATERIAL SUBMITTED: 30 (Thirty) Samples - Bayonne Barrel & Drum

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: LM 1183 page 13

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 11/1/85, have been analyzed for the remaining constituents requested completing the analytical requirements.

All data are presented in the attached tables.

t 41686

By _____
GOLLOB ANALYTICAL SERVICE

Sample Identity: BBD 4/1'

micrograms/kilograms

ACID COMPOUNDS

21A 2,4,6-Trichlorophenol	ND
22A p-Chloro-m-cresol	ND
24A 2-Chlorophenol	ND
31A 2,4-Dichlorophenol	ND
34A 2,4-Dimethylphenol	ND
57A 2-Nitrophenol	ND
58A 4-Nitrophenol	ND
59A 2,4-Dinitrophenol	ND
60A 4,6-Dinitro-o-cresol	ND
64A Pentachlorophenol	ND
65A Phenol	ND

BASE/NEUTRAL COMPOUNDS

1B Acenaphthene	ND
5B Benzidine	ND
8B 1,2,4-Trichlorobenzene	ND
9B Hexachlorobenzene	ND
12B Hexachloroethane	ND
18B Bis(2-chloroethyl)ether	ND
20B 2-Chloronaphthalene	ND
25B 1,2-Dichlorobenzene	ND
26B 1,3-Dichlorobenzene	ND
27B 1,4-Dichlorobenzene	ND
28B 3,3-Dichlorobenzidine	ND
35B 2,4-Dinitrotoluene	ND
36B 2,6-Dinitrotoluene	ND
37B 1,2-Diphenylhydrazine	ND
39B Fluoranthene ----------	*
40B 4-Chlorophenyl phenyl ether	ND

BASE/NEUTRAL COMPOUNDS

41B 4-Bromophenyl phenyl ether	ND
42B Bis(2-chloroisopropyl)ether	ND
43B Bis(2-chloroethoxy)methane	ND
52B Hexachlorobutadiene	ND
53B Hexachlorocyclopentadiene	ND
54B Isophorone	ND
55B Naphthalene	ND
56B Nitrobenzene	ND
61B n-Nitrosodimethylamine	NA
62B n-Nitrosodiphenylamine[a]	ND
63B n-Nitrosodi-n-propylamine	ND
66B Bis(2-ethylhexyl)phthalate	ND
67B Butyl benzyl phthalate	ND
68B Di-n-butyl phthalate	ND
69B Di-n-octyl phthalate	ND
70B Diethyl phthalate	ND
71B Dimethyl phthalate	ND
72B Benzo(a)anthracene ----------	*
73B Benzo(a)pyrene)† --------	*
74B Benzo(b)fluoranthene)	
75B Benzo(k)fluoranthene ----------	*
76B Chrysene ----------	*
77B Acenaphthylene	ND
78B Anthracene	ND
79B Benzo(ghi)perylene ----------	*
80B Fluorene	ND
81B Phenanthrene ----------	*
82B Dibenzo(a,h)anthracene	ND
83B Indeno(1,2,3-cd)pyrene --------	*
84B Pyrene ----------	*

ND = None detected above the average reporting limit of 640 ppb for acids and 2,600 ppb for B/N.

Reported by: JE
Checked by: [illegible]

NA = Not analyzed due to method limitations.

[a]Analyzed as diphenylamine.

*Trace concentrations detected below the average reporting limit.

†Coelute.

December 23, 1985

Gollob Analytical Service
47 Industrial Road
Berkeley Heights, New Jersey 07922

Attention: Lou Molinini

Re: Transfer of Soil Samples and Request for Analysis
Bayonne Barrel and Drum Company
Job No. 84C182

Gentlemen:

Please find attached a copy of the Chain of Custody form for the samples from the subject site. These samples were transferred to your laboratory by John A. Larkins, of Dan Raviv Associates, Inc. on December 3, 1985. The purpose of this letter is to confirm our instructions regarding the type of analysis to be performed. The analyses requested are indicated in the "Remarks" column opposite each of the samples listed on the attached form.

If you have any questions, please call.

Very truly yours,

DAN RAVIV ASSOCIATES, INC.

Michael M. Zucker
Geologist

MMZ/sm
Enc.

Sample Identity: BBD 14/1'

micrograms/kilograms

ACID COMPOUNDS	
21A 2,4,6-Trichlorophenol	ND
22A p-Chloro-m-cresol	ND
24A 2-Chlorophenol	ND
31A 2,4-Dichlorophenol	ND
34A 2,4-Dimethylphenol	ND
57A 2-Nitrophenol	ND
58A 4-Nitrophenol	ND
59A 2,4-Dinitrophenol	ND
60A 4,6-Dinitro-o-cresol	ND
64A Pentachlorophenol	ND
65A Phenol	ND

BASE/NEUTRAL COMPOUNDS	
1B Acenaphthene	ND
5B Benzidine	ND
8B 1,2,4-Trichlorobenzene	ND
9B Hexachlorobenzene	ND
12B Hexachloroethane	ND
18B Bis(2-chloroethyl)ether	ND
20B 2-Chloronaphthalene	ND
25B 1,2-Dichlorobenzene	ND
26B 1,3-Dichlorobenzene	ND
27B 1,4-Dichlorobenzene	ND
28B 3,3-Dichlorobenzidine	ND
35B 2,4-Dinitrotoluene	ND
36B 2,6-Dinitrotoluene	ND
37B 1,2-Diphenylhydrazine	ND
39B Fluoranthene	ND
40B 4-Chlorophenyl phenyl ether	ND
41B 4-Bromophenyl phenyl ether	ND
42B Bis(2-chloroisopropyl)ether	ND
43B Bis(2-chloroethoxy)methane	ND
52B Hexachlorobutadiene	ND
53B Hexachlorocyclopentadiene	ND
54B Isophorone	ND
55B Naphthalene ----------	420,000 ✓
56B Nitrobenzene	ND
61B n-Nitrosodimethylamine	NA
62B n-Nitrosodiphenylamine[a]	ND
63B n-Nitrosodi-n-propylamine	ND
66B Bis(2-ethylhexyl)phthalate	410,000 ✓
67B Butyl benzyl phthalate	ND
68B Di-n-butyl phthalate	ND
69B Di-n-octyl phthalate	ND
70B Diethyl phthalate	ND
71B Dimethyl phthalate	ND
72B Benzo(a)anthracene	ND
73B Benzo(a)pyrene	ND
74B Benzo(b)fluoranthene	ND
75B Benzo(k)fluoranthene	ND
76B Chrysene	ND
77B Acenaphthylene	ND
78B Anthracene	ND
79B Benzo(ghi)perylene	ND
80B Fluorene	ND
81B Phenanthrene	ND
82B Dibenzo(a,h)anthracene	ND
83B Indeno(1,2,3-cd)pyrene	ND
84B Pyrene	ND

ND = None detected above the average reporting limit of 10,000 ppb for acids and 200,000 ppb for B/N.

ppb Reported by: JB
Checked by: AT

NA = Not analyzed due to method limitations.

[a]Analyzed as diphenylamine.

Sample Identity: BBD 16/5-8'

micrograms/kilogram

ACID COMPOUNDS	
21A 2,4,6-Trichlorophenol	ND
22A p-Chloro-m-cresol	ND
24A 2-Chlorophenol	ND
31A 2,4-Dichlorophenol	ND
34A 2,4-Dimethylphenol	ND
57A 2-Nitrophenol	ND
58A 4-Nitrophenol	ND
59A 2,4-Dinitrophenol	ND
60A 4,6-Dinitro-o-cresol	ND
64A Pentachlorophenol	ND
65A Phenol	ND

BASE/NEUTRAL COMPOUNDS	
1B Acenaphthene	ND
5B Benzidine	ND
8B 1,2,4-Trichlorobenzene	ND
9B Hexachlorobenzene	ND
12B Hexachloroethane	ND
18B Bis(2-chloroethyl)ether	ND
20B 2-Chloronaphthalene	ND
25B 1,2-Dichlorobenzene	ND
26B 1,3-Dichlorobenzene	ND
27B 1,4-Dichlorobenzene	ND
28B 3,3-Dichlorobenzidine	ND
35B 2,4-Dinitrotoluene	ND
36B 2,6-Dinitrotoluene	ND
37B 1,2-Diphenylhydrazine	ND
39B Fluoranthene ----------	*
40B 4-Chlorophenyl phenyl ether	ND
41B 4-Bromophenyl phenyl ether	ND
42B Bis(2-chloroisopropyl)ether	ND
43B Bis(2-chloroethoxy)methane	ND
52B Hexachlorobutadiene	ND
53B Hexachlorocyclopentadiene	ND
54B Isophorone	ND
55B Naphthalene	ND
56B Nitrobenzene	ND
61B n-Nitrosodimethylamine	NA
62B n-Nitrosodiphenylamine[a]	ND
63B n-Nitrosodi-n-propylamine	ND
66B Bis(2-ethylhexyl)phthalate	ND
67B Butyl benzyl phthalate	ND
68B Di-n-butyl phthalate	ND
69B Di-n-octyl phthalate	ND
70B Diethyl phthalate	ND
71B Dimethyl phthalate	ND
72B Benzo(a)anthracene	ND
73B Benzo(a)pyrene	ND
74B Benzo(b)fluoranthene	ND
75B Benzo(k)fluoranthene	ND
76B Chrysene	ND
77B Acenaphthylene	ND
78B Anthracene	ND
79B Benzo(ghi)perylene	ND
80B Fluorene	ND
81B Phenanthrene ----------	*
82B Dibenzo(a,h)anthracene	ND
83B Indeno(1,2,3-cd)pyrene	ND
84B Pyrene ----------	*

ND = None detected above the average reporting limit of 4,800 ppb for acids and 9,500 ppb for B/N.

NA = Not analyzed due to method limitations.

[a]Analyzed as diphenylamine.

*Trace concentrations detected below the average reporting limit.

Reported by: HS
Checked by: FL

d Extractibles

mple Type: Water

Micrograms/liter

Sample Identity:	BBDC 4											
Constituents												
4-Chloro-3-Methylphenol	ND-25											
Chlorophenol												
2,4-Dichlorophenol												
-Dimethylphenol												
,4-Dinitrophenol												
Methyl 4,6-Dinitrophenol												
Nitrophenol												
-Nitrophenol												
ntachlorophenol												
Phenol												
-Trichlorophenol												

te Extracted: 1/13/86

te Analyzed: 1/24/86

ND=None Detected, less than

Base Neutral & Pesticide Extractables

Sample Type: Water (BBD)

Micrograms/liter

Sample Identity:	BBDC4
Acenaphthene	ND 10
Acenaphthylene	ND 10
Anthracene	ND 10
Aldrin	ND 10
Benzo(a)anthracene	ND 10
Benzo(b)fluoranthene	ND 10
Benzo(k)fluoranthene	ND 10
Benzo(a)pyrene	ND 10
Benzo(ghi)perylene	ND 40
Benzyl butyl phthalate	ND 10
β-BHC	ND 10
δ-BHC	ND-10
Bis(2-chloroethyl)ether	ND-10
Bis(2-chloroethoxy)methane	ND-10
Bis(2-ethylhexyl)phthalate	ND-10
Bis(2-chloroisopropyl)ether	ND-10
4-Bromophenyl phenyl ether	ND-10
Chlordane	ND-10
2-Chloronaphthalene	ND-10
4-Chlorophenyl phenyl ether	ND-10
Chrysene	ND-10
4,4'-DDD	ND-10
4,4'-DDE	ND-10
4,4'-DDT	ND-10
Dibenzo(a,h)anthracene	ND-40
Di-n-butylphthalate	28
1,3-Dichlorobenzene	ND-10
1,2-Dichlorobenzene	ND-10
1,4-Dichlorobenzene	ND-10
3,3'-Dichlorobenzidine	ND-25
Dieldrin	ND-10
Diethyl phthalate	ND-10
Dimethyl phthalate	ND-10
2,4-Dinitrotoluene	ND-10
2,6-Dinitrotoluene	ND-10
Di-n-octylphthalate	ND-10
Endosulfan sulfate	ND-10
Endrin aldehyde	ND-10

Date Extracted: 1/13/86

Date Analyzed: 1/24/86

Dan Raviv Associates, Inc.
West Orange, N.J.

DETAILED DRILL LOG

PROJECT NAME: [illegible]	TEST HOLE NUMBER: [illegible]	SHEET 2 of 4
PROJECT/JOB NUMBER: 84C133-		
DRILLING COMPANY: [illegible]	SITE:	LOCATION: [illegible]
NAME of DRILLER: [illegible]	LOGGED BY: [illegible] / CHECKED BY:	ELEVATION:
DRILL MANUFACTURER AND MODEL NUMBER:	DEPTH TO GROUNDWATER/DATE: [illegible] 6.35' [illegible]	ORIENTATION: Vertical
SIZE AND TYPE OF BIT (S): 10" O.D. [illegible]	TOTAL DEPTH OF HOLE 20' / TOTAL CORE RECOVERY:	DATE STARTED 12/3/85 / DATE COMPLETE 12/5/85

Depth	Sampling & Sequence	Recovery (ft)	RQD	Remarks	Classification of Materials (Description)
0–5	SS	C	0%		0-5' Auger cuttings [illegible]
5	SS	1/3	15%	Water encountered at 6'	5-7' Moist, dark brown gravel/sand fill
10	SS	1	50%		10-12' Black red-brown, fine to medium grain sand with some [illegible]
15–20				Flushed boring from 20' [illegible] water brought up dark red-brown, fine-medium grain sand (Heaving →)	12-20' Black red-brown, fine to medium grain sand
				4-14' screened TD = 20' TD casing = 20'	

Dan Raviv Associates, Inc. West Orange, N.J. DETAILED DRILL LOG	PROJECT NAME: Bayonne Barrel + Drum	TEST HOLE NUMBER: B3X3 SHEET 3 of __
	PROJECT/JOB NUMBER: 84C152	
DRILLING COMPANY: [illegible] Boring + Drilling	SITE	LOCATION
NAME of DRILLER: [illegible]	LOGGED BY: MZ / CHECKED BY:	ELEVATION
DRILL MANUFACTURER AND MODEL NUMBER	DEPTH TO GROUNDWATER/DATE	ORIENTATION: Vertical
SIZE AND TYPE OF BIT (S): 8" Rotary	TOTAL DEPTH OF HOLE 53' / TOTAL CORE RECOVERY	DATE STARTED 12/12/85 / DATE COMPLETED 12/17/85

Depth Ft.	Drilling & Sampling	Recovery (Ft.)	RQD	Sampler (Ft.)	Water Level	Remarks	Depth Elev.	Graphic Log	Classification of Materials (Description)
	SS								0-2.5' Rim stone gravel fill
	SS								2.5-5' Black silvery-gray gritty silt fill
5	SS					Water level @ about 3'3" below surface (in boring) at this level material - probably due to wetness - is very loose and appears to drop from walls of boring			5-7' Angular sandy type bed gravel fill
10	SS								10-12' Maroon red-brown medium grained, well sorted sand
15									
20									
25									
30									
35						This boring was ~~closed~~ Sealed			
40									
45									
50									

SENT
1/10/86

January 7, 1986

Gollob Analytical Service
47 Industrial Road
Berkeley Heights, New Jersey 07922

Attention: Lou Molinini

Re: Request for Analysis of Samples
Bayonne Barrel & Drum
Job No. 84C182

Gentlemen:

Please find attached a copy of the Chain of Custody form for the samples from the subject site. These samples were transferred to your laboratory by Thomas Voss, geologist, of Dan Raviv Associates, Inc. (DRAI) on January 7, 1986. The purpose of this letter is to confirm our instructions regarding the type of analysis to be performed. The analyses requested are indicated in the "Remarks" column opposite each of the samples listed on the attached form.

If you have any questions, please call.

Very truly yours,

DAN RAVIV ASSOCIATES, INC.

Roberta N. Hoy
Geohydrologist

RNH/sl
Enc.

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 82C.182 PROJECT NAME Bayonne Barrel & Drum

LOCATION Bayonne, NJ LABORATORY Globe

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBDC 1	water	1/7/86	1255	4	[signature]	VOA's, TPHC & PCB
BBDC 2	water	1/7/86	1350	4	[signature]	VOA's, TPHC & PCB
BBDC 3	water	1/7/86	1410	4	[signature]	VOA's, TPHC & PCB
* BBDC 4	water	1/7/86	1320	8	[signature]	129 Priority Pollut
BBDC 5	water	1/7/86	1440	4	[signature]	VOA's, TPHC & PCB
BBDC 6	water	1/7/86	1250	4	[signature]	VOA's, TPHC & PCB

Relinquished By: [signature]	Date/Time: 1/7/86 - 1628	Received By: [signature] 1633	Comments/Condition:
Relinquished By: [signature]	Date/Time: 1-07-86	Received By: Deb John Samuel	Comments/Condition:
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: Deb John Samuel Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 1-07-86 1720 Date of Disposal:

* Filter sample in plastic containers for metal analysis prior to adding

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C132 PROJECT NAME Bayonne Barrel + Drum Co.

LOCATION Newark, NJ LABORATORY [illegible]

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBDC1/0-2'	Soil	11/27/85	1346	2	[signature]	TPHC, VOA, PCB
BBDC1/5-7'	Soil	11/27/85	1402	2	[signature]	VOA.
BBDC1/10-12'	Soil	11/27/85	1421	1	[signature]	TPHC, PCB
BBDC 1/15-17'	Soil	11/27/85	1459	2	[signature]	HOLD
BBDC 1/20-22'	Soil	12/2/85	08:4	1	[signature]	HOLD
BBDC2/5-7'	Soil	12/3/85	1250	2	[signature]	TPHC, VOA, PCB
BBDC2/10-12'	Soil	12/3/85	1322	2	[signature]	TPHC, VOA, PCB

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
[signature]	12/3/85 1700	[signature]	[illegible] + good, on ice
Relinquished By: [signature]	**Date/Time:** 12/3/85 12:45	**Received By:** T. [illegible]	**Comments/Condition:**
Method of Shipment:	**Shipped By:**	**Received By:**	**Comments/Condition:**

Received for Laboratory: ____________ Authorization for Disposal: ____________

Laboratory Job No: ____________ Type of Disposal: ____________

Date/Time: ____________ Date of Disposal: ____________

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84CB2 PROJECT NAME [illegible]

LOCATION [illegible], NJ LABORATORY [illegible] Analytical

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
GBDC 3/0.5-2.5 / 2.5-4.5	soil	12/4/85	1513 / 1524	1	[signature]	HOLD
GBDC 3/5-7	soil	12/5/85	[illegible]	2	[signature]	TPHC, PCB, VOA
GBDC 3/10-12	soil	12/5/85	[illegible]	2	[signature]	HOLD
GBDC 4/0-2	soil	12/5/85	1524	5	[signature]	HOLD

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
[signature]	12/14/85 [illegible]	[signature]	good, on ice
Relinquished By: Robert [illegible]	Date/Time: 12/16/85 1130	Received By: A. L. Russo	Comments/Condition: good, on ice
~~Method of Shipment:~~ Relinquished By: A. L. Russo	~~Shipped By:~~ Date/Time: 12/16/85 1735	Received By: H. D'Allesio	Comments/Condition: good on ice

Received for Laboratory: H. D'Allesio

Authorization for Disposal: ____

Laboratory Job No: ____

Type of Disposal: ____

Date/Time: 12/16/85 1735

Date of Disposal: ____

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME [illegible]

LOCATION [illegible], NJ LABORATORY [illegible]

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBDC4/5-7'	soil	12/9/85	1758	3	[illegible]	TPHC, PCB, VOA
BBDC4/10-12'	soil	12/9/85	0907	2	[illegible]	(1) TPHC, PCB
BBDC4/15-17'	soil	12/9/85	0928	2	[illegible]	TPHC, PCB, VOA

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
[illegible]	12/14/85 [illegible]	[illegible]	good, on ice
Relinquished By: [illegible]	**Date/Time:** 12/16/85 1130	**Received By:** A.L. Russo	**Comments/Condition:** good, on ice
~~Method of Shipment:~~ relinquished by A.L. Russo	~~Shipped By:~~ Date/Time 12/16/85 1735	**Received By:** H [illegible]	**Comments/Condition:** good on ice

Received for Laboratory: H [illegible] Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 12/16/85 1735 Date of Disposal:

(1) Sample BBDC4/10-12' two 1pt jars, run TPHC and PCB for each jar, do not mix the jars.

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME [illegible]

LOCATION [illegible] LABORATORY [illegible]

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBDC3/15-17'	Soil	12/13/85	0920	2	[signature]	TPHC, PCB, VOC
BBDC3/20-22'	Soil	12/13/85	1134	2	[signature]	TPHC, PCB, VOA
BBDC3/25-27'	Soil	12/13/85	1316	2	[signature]	HOLD
BBDC3/30-32'	Soil	12/13/85	1356	2	[signature]	HOLD
BBDC3/35-37'	Soil	12/13/85	1431	2	[signature]	HOLD
BBDC3/40-42'	Soil	12/13/85	1503	2	[signature]	HOLD

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
[signature]	12/14/85 [illegible]	Robert H.	good, on ice
Relinquished By:	**Date/Time:**	**Received By:**	**Comments/Condition:**
Robert [signature]	12/16/85 1130	O.L. Russo	good, on ice.
~~Method of Shipment:~~ Relinquished By:	~~Shipped By:~~ Date/Time:	**Received By:**	**Comments/Condition:**
O.L. Russo	12/16/85 1735	[signature]	good on ice

Received for Laboratory: [signature] Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 12/16/85 1735 Date of Disposal:

SAMPLE ANALYSIS REQUEST FORM

Job Number: 44182 Job Location: Newark, New Jersey

Samples Collected by : M Zarb Sampling Date: 10/25/95 - 10/31/95

Time Sampling began : : : finished : : :

Collection Method : Boring

Sampling Equipment Used: Split Spoon

Sample Matrix : Soil

Was Chain of Custody Implemented : YES ✓ NO _
Were Samples Delivered to Lab on Ice: YES _ NO _

ANALYSIS REQUESTED

Parameter	Container ID	Detection Limit	Preservative Used	Requested Turnaround Time (days)
TPHC	BBD1/1-2'			
TPHC	BBD1/2-3'			
TPHC	BBD2/2'			
TPHC	BBD2/5'			
TPHC	BBD2/5-7'			
TPHC, PCB	BBD3/2'			
TPHC	BBD3/3'			
TPHC	BBD4/3'			
TPHC	BBD4/5-7'			
TPHC	BBD4/9-11'			
TPHC	BBD5/2'			
TPHC	BBD5/3'			
TPHC	BBD6/2'			
TPHC	BBD6/3'			

COMMENTS: Please note on Report that holding time has been exceeded, analysis being performed for the purpose of delineation only

ANALYSIS REQUESTED BY : MZ

PERSON ACCEPTING SAMPLE: J.G. Williams Date: 2/5/96 Time: 09:19:1

LAB NAME: United Analytical Svc. LAB I.D. : 20003

E ANALYSIS REQUEST FORM

2 Job Location: Newark, New Jersey

by : M. Zool Sampling Date: / / 10/25/85 - 10/31/85

an : : : finished : : :

: Boring

Used: Split Spoon

: Soil

dy Implemented : YES X NO _
vered to Lab on Ice: YES _ NO _

NALYSIS REQUESTED

Container ID	Detection Limit	Preservative Used	Requested Turnaround Time (days)
BBD8/2'			
BBD8/3'			
BBD9/2'			
BBD9/5-7'			
BBD10/2'			
BBD10/3'			
BBD11/3'			
BBD12/2'			
BBD12/3'			
BBD13/2'			
BBD13/3'			
BBD13/4'			

BY : MZ

AMPLE: [illegible] Date: 2/5/86 Time: 09:19:12

[illegible] LAB I.D. : 20003

Constituent:	PCB	
Sample Identity	Amount	Arochlor Type
	Concentration, ppm by Weight	
BBD1	15	1254
BBD2	ND 10	
BBD3	ND 10	
BBD4	ND 10	
BBD5	16	1260
BBD6	ND 10	
BBD7	ND 10	
BBD8	ND 15	
BBD9	17	1260
BBD11	ND 10	
BBD12	ND 20	
BBD13	ND 10	
BBD14	65	1260

ND=none detected, less than

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

TO Dr. D. Raviv
Dan Raviv Associates
588 Eagle Rock Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 57163B
Date Requested: 1/18/85
Date Reported. 2/13/85
P. O. No. 84C182

Dan Raviv Associates, Inc.
FEB 16 1985
RECEIVED

MATERIAL SUBMITTED: 1 (One) Soil Sample - BBD 10

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: CM 1063 page 1, CM 1023 page 59

RESULT OF INVESTIGATION

Subject sample, hand delivered to G.A.S. on 1/18/85, has been analyzed for the constituents requested.

All data are presented in the attached tables.

t 21485

By Victor H. Gollob
GOLLOB ANALYTICAL SERVICE

Gas Chromatography Analysis

Constituent: Sample Identity	PCB (mg/kg) (1248)	(1254)	Date Analyzed
BBDC3/10-12'	ND 1	ND 1	2/7, 2/22
BBDC3/(0.5-2.5) (2.5-4.5')	14	29	2/10,2/22
BBDC3/(0.5-2.5) (2.5-4.5)Dup.	19	38	
BBD 19/3	ND 1	ND 1	2/7
BBDC1/5-7	ND 5*	ND 5*	2/10,2/22
BBD19/2'	8	24	2/7, 2/22
BBD19/2'(Dup.)	10	29	2/7, 2/22
BBD16/1-2'	90	123	2/12
BBD16/1-2'(Dup.)	85	144	2/12
BBD3/2'	23	ND 1	2/7,2/24
BBD3/2' Dup.	21	ND 1	
BBD13/2	ND 5*	ND 5*	2/7
BBD8/2'	ND 1	5	2/10
BBD9/2'	ND 1	ND 1	2/10

All Extracted 2/7/86.

	% Recovery	
BBD8/2' (Spike)	133	107

Date Extracted: 2/13/86
Date Analyzed: 2/14/86

ND=none detected, less than

*Higher threshold due to interferences, no Arochlor chromatographic fingerprint present.

mg/kg=milligrams/kilogram

Concentration, milligrams/kilogram

Sample Identity:	BBD1 1-2'	BBD1 2-3'	BBDC1 5-7'	BBD2 2'	BBD2 3'
Petroleum Hydrocarbons	1480	530	8630	810	1130

Sample Identity:	BBD2 5-7'	BBDC3 0.5-2.5' 2.5-4.5'	BBD3 2'	BBD3 3'	BBDC3 10-12'
Petroleum Hydrocarbons	610	5920	9630 7290 Dup.	7440	190

Sample Identity:	BBD4 3'	BBD4 5-7'	BBD4 9-11'	BBD5 2'	BBD5 3'
Petroleum Hydrocarbons	15,100	1190 900 Dup.	940	1040	9180

All Extracted: 2/12/86
All Analyzed: 2/14/86

Sample Identity:	BBD6 2'	BBD6 3'	BBD8 2'	BBD8 3'	BBD9 2'
Petroleum Hydrocarbons	2440	5900	31,200	173,000	410

Sample Identity:	BBD9 5-7'	BBD10 3'	BBD11 3'	BBD12 2'	BBD12 3'
Petroleum Hydrocarbons	120	230	450	42	120

Sample Identity:	BBD13 2'	BBD15 9-11'	BBD16 1-2'	BBD17 5-7'	BBD19 2'
Petroleum Hydrocarbons	1350	5230	20,800	20,800	1700

Sample Identity:	BBD19 3'
Petroleum Hydrocarbons	130 23 Dup.

All Extracted 2/13/86
All Analyzed 2/14/86

Dan Raviv Associates Inc.

Dan Raviv Associates, Inc. West Orange, N.J. DETAILED DRILL LOG	PROJECT NAME: Bayonne Barrel + Drum	TEST HOLE NUMBER: B3DC3 SHEET 3 of —
	PROJECT/JOB NUMBER: 84052	
DRILLING COMPANY: Tommy Boroni + Drilling	SITE	LOCATION
NAME of DRILLER: [illegible]	LOGGED BY: [illegible] / CHECKED BY:	ELEVATION
DRILL MANUFACTURER AND MODEL NUMBER	DEPTH TO GROUNDWATER/DATE	ORIENTATION: Vertical
SIZE AND TYPE OF BIT (S): 8" Rotary	TOTAL DEPTH OF HOLE: 53' / TOTAL CORE RECOVERY	DATE STARTED: 12/12/85 / DATE COMPLETE: 12/17/85

Depth ft.	Sampling	Recovery	%	Sample	Water	REMARKS (Bit Size, Water Loss, Weathering etc.)	Depth ft.	Graphic Log	CLASSIFICATION OF MATERIALS (DESCRIPTION)
0–5	SS, SS								0-2.5' Run stone gravel fill
5	SS					Water level @ about 3'3" below surface (in boring) at this level material - probably due to wetness - is very loose and appears to slop from walls of boring			2.5-5' Black silvery-gray gritty silt fill
10	SS								5-7' Angular sandy type Bed gravel fill
15									10-12' Maroon red-brown medium grained, well sorted sand
20–35									
35–40						This boring was ground Sealed!			
45, 50									

Dan Raviv Associates, Inc.
West Orange, N.J.

DETAILED DRILL LOG

PROJECT NAME: Bayonne Barrel

PROJECT/JOB NUMBER: 84C182

TEST HOLE NUMBER: BB2S

SHEET 1 of 1

DRILLING COMPANY: Jersey Boring and Drilling

SITE:

LOCATION:

NAME of DRILLER: George Thornhill

LOGGED BY: M Zucker

CHECKED BY:

ELEVATION:

DRILL MANUFACTURER AND MODEL NUMBER:

DEPTH TO GROUNDWATER/DATE: 5.70 ft 1/7/85

ORIENTATION: Vertical

SIZE AND TYPE OF BIT (S):

TOTAL DEPTH OF HOLE: 7'

TOTAL CORE RECOVERY:

DATE STARTED: 12/17/85

DATE COMPLETED: 12/17/85

Depth (ft)	Sample & Symbol	Recovery (in)	Blows / 6"	Penetration (in)	Other Tests	Remarks (Sample Type, Water Loss, Observations, etc.)	Depth (ft)	Graphic Log	Classification of Materials (Description)
									0-3" Road gravel and black silt
2									0-7' Blk silty fill moist to wet,
4						strong odor			
6					5'	Drilled to Seven ft 0-1 ft 2 1/4 casing 1-6 ft 2 1/4" ϕ steel screen			
8									

Appendix C

Chain of Custody Forms

January 18, 1985

Gollob Analytical Service
47 Industrial Road
Berkeley Heights, New Jersey 07922

Attention: Lou Molinini

Re: Transfer of Soil Samples and Request for Analysis
Bayonne Barrel and Drum Company
Job No. 84C182

Gentlemen:

Please find attached a copy of the Chain of Custody form for the samples from the subject site. These samples were transferred to your laboratory by David Morrow, Geologist, of Dan Raviv Associates, Inc. on January 18, 1985. The purpose of this letter is to confirm our instructions regarding the type of analysis to be performed. The analyses requested are indicated in the "Remarks" column opposite each of the samples listed on the attached form.

We request 13 analyses to determine the presence and concentrations of PCB's (samples #1 through #9 and #11 through #14) and 1 analysis to determine EP-Toxicity characteristics (Sample #10). Sample #10 is a composite of samples #2, #5 and #8. Please analyze and report as soon as possible.

If you have any questions, please call.

Very truly yours,

DAN RAVIV ASSOCIATES, INC.

Dan D. Raviv, Ph.D.
President

DDR/sm
Enc.
cc: William K. Sawyer, Esq.
Waste and Toxic Substances Branch
USEPA - Region II

Friday 1/2

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Barrel & Drum

LOCATION Bayonne, NJ LABORATORY

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD1/0-1	Soil	10/25/85	0934	2 PT	M. Zuch	VOA,(1) TPHC(2)
BBD1/1-2	Soil	10/25/85	0940	2 PT	M. Zuch	(4)
BBD1/2-3'	Soil	10/25/85	0950	2 PT	M. Zuch	
BBD2/1'	Soil	10/25/85	1057	1 PT	M. Zuch	VOA, TPHC
BBD2/2'	Soil	10/25/85	1102	1 PT	M. Zuch	
BBD2/3'	Soil	10/25/85	1104	1 PT	M. Zuch	
BBD3/1'	Soil	10/25/85	1200	1 PT	M. Zuch	TPHC, PCB(3)
BBD3/2'	Soil	10/25/85	1213	1 PT	M. Zuch	
BBD3/3'	Soil	10/25/85	1224	1 PT	M. Zuch	
BBD4/1'	Soil	10/25/85	1402	1 PT	M. Zuch	
BBD4/2'	Soil	10/25/85	1404	1 PT	M. Zuch	TPHC
BBD4/3'	Soil	10/25/85	1407	1 PT	M. Zuch	

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M Zuch	11/21/85 1814	J Dallacco	good/iced
Relinquished By:	Date/Time:	Received By:	Comments/Condition:-
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: J Dallacco Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: Date of Disposal:

(1) VOA = Volatile Organic Compound's Analysis.

(2) TPHC = Total Petroleum Hydrocarbons Analysis.

(4) Please HOLD all samples not currently listed for Analysis.

Fridays
2/2

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Barrel & Drum

LOCATION Bayonne, NJ LABORATORY

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD 5/1'	Soil	10/25/85	1422	1 Qt	M. Zuk	TPHC
BBD 5/2'	Soil	10/25/85	1444	1 Qt	M Zuk	
BBD 5/3'	Soil	10/25/85	1449	1 Qt	M. Zuk	
BBD 6/1'	Soil	10/25/85	1505	1 Qt	M Zuk	TPHC
BBD 6/2'	Soil	10/25/85	1507	1 Qt.	M Zuk	
BBD 6/3'	Soil	10/25/85	1511	1 Qt	M Zuk	

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M Zuk	10/28/85 1814	H Gallucci	Good/iced
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: H Gallucci Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: Date of Disposal:

latile Organic Analysis (GC-MS)

data are presented in the attached table listing the priority pollutant nstituents detected in excess of 20 ppb by weight. The non-priority pollutant constituents detected in excess of 20 ppb are listed in the following tabl

Sample Identity:	BBDC 3/5-7'	BBDC 4/5-7'
Constituents Detected	Concentration, ppb by Weight	
Carbon Disulfide	- - -	40
Cyclohexane	- - -	50
Isopropyl Cyclopropane	- - -	70
$C_7 H_{14}$ Hydrocarbons	200	150
Xylene Isomers	9600	4300
$C_9 H_{12}$ Hydrocarbons	2000	800
$C_9 H_{10}$ Hydrocarbons	330	80
$C_7 H_{10}$ Hydrocarbons	- - -	30
$C_{10}H_{20}$ Hydrocarbons	- - -	180
$C_{10}H_{19}$ Hydrocarbons	100	- - -

Samples Extracted 12/30/85
Samples Analyzed 12/31/85

Samples: GEE:
BBDC3/15-17' ND 20
C3/20-22' ND 20
C4/15-17' ND 20

for Non Priority Constituents
as per phone Conversation w/
Lou Lelinini 4/1/86 MS

Dr. Dan Raviv
Dan Raviv Associates

Volatile Organic Analysis by EPA Method 624

Concentration, ppb by Weight

Sample Identification:	BRD	BRD	BRD	BRD	BRD
Pollutants	C1 5-7'	C1 15-17'	C1 20-22'	C4 5-7'	C4 15-17'
Chloromethane		ND-20	ND-20		
Bromomethane					
Vinyl Chloride					
Chloroethane					
Methylene Chloride					
Trichlorofluoromethane					
1,1,-Dichloroethylene					
1,1-Dichloroethane					
1,2-Dichloroethylene					
Chloroform					
1,2-Dichloroethane					
1,1,1-Trichloroethane					
Carbon Tetrachloride					
Bromodichloromethane					
1,2-Dichloropropane					
trans-1,3-Dichloropropene					
Trichloroethylene					
Benzene	265			90	26
Dibromochloromethane					
cis-1,3-Dichloropropene					
1,1,2-Trichloroethane					
2-Chloroethylvinyl Ether					
Bromoform					
1,1,2,2-Tetrachloroethene					
1,1,2,2-Tetrachloroethane					
Toluene	1700			2200	20
Chlorobenzene	330			650	
Ethylbenzene	3700			790	10
1,3-Dichlorobenzene					
1,2 & 1,4-Dichlorobenzene	320			87	

Samples Prepared 12/30/85
Samples Analyzed 12/31/85

Limit of Detection 20 ppb

Detection threshold 20 ppb by Weight

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

Dan Raviv Associates, Inc.

MAR 24 1986

RECEIVED

TO Dr. Dan Raviv
Dan Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59883

Date Requested: 1/7/86
Date Reported: 2/28/86
P.O. No. 84C182

MATERIAL SUBMITTED: 6 (Six) Water Samples (BBD)

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: GC/MS 1148, Page 17 and LP 1154, Page 14

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 1/7/86, have been analyzed for the constituents requested and reported in the following tables.

By _____
GOLLOB ANALYTICAL SERVICE

PCB Analysis by Gas Chromatography

Sample Identity (water Samples)	PCB Concentration, micrograms/liter
BBDC1	ND 1
BBDC2	ND 1
BBDC3	ND 1
BBDC5	53*
BBDC6	ND 1

Sediment Separated From Sample Identity	Milligrams/Kilogram
BBDC5	80*

*Characteristic of Arochlor 1254

ND=None detected, less than

Volatile Organics (EPA Method 624)

All data are presented in the attached table listing the volatile priority pollutants and non-priority constituents detected.

Lawrence Livermore Laboratory

Concentration, ppb by Weight

Volatile Organic Analysis by EPA Method 624

Sample Identification:				Dupl.		(BED)			Dupl.					
Pollutants	C1	C2	C4	C3	C4	C5	C6	C6						
Chloromethane	ND-5		ND-5				ND-5	ND-5						
Bromomethane														
Vinyl Chloride														
Chloroethane														
Methylene Chloride														
Trichlorofluoromethane														
1,1,-Dichloroethylene														
1,1-Dichloroethane														
1,2-Dichloroethylene														
Chloroform				25										
1,2-Dichloroethane														
1,1,1-Trichloroethane		5												
Carbon Tetrachloride														
Bromodichloromethane				5										
1,2-Dichloropropane														
trans-1,3-Dichloropropene														
Trichloroethylene														
Benzene						28								
Dibromochloromethane														
cis-1,3-Dichloropropene														
1,1,2-Trichloroethane														
2-Chloroethylvinyl Ether														
Bromoform														
1,1,2,2-Tetrachloroethene														
1,1,2,2-Tetrachloroethane														
Toluene						5	150							
Chlorobenzene							67							
Ethylbenzene							1060							
1,3-Dichlorobenzene														
1,2 & 1,4-Dichlorobenzene							76							
Non-Priority Pollutants (Method 624)														
Chlorofluoromethane		10						ND						
Dichlorofluoromethane		70												
Di-isopropylether		15												
Diethylether			10	20		30								
2,4,4-Trimethylpentene			10	10										
Xylene Isomers						15	2000							
Cyclohexane							60							
Methylcyclopentane							30							
Cycloheptane							100							
Isopropylbenzene							90							
n-propylbenzene							150							
Ethyl Toluene Isomers						35	550							
Trimethylbenzene Isomers							1400							
C_9 Compound							240							

Detection threshold : ppb by Weight

etals - Atomic Absorption Analysis

Sample Identity:	BBDC-4	Date Extracted	Date Analyzed
Constituents	Milligrams/liter		
Antimony	ND 0.5	1/9/86	1/24/86
Arsenic	0.01	1/22/86	1/22/86
Beryllium	ND 0.01	1/9/86	1/14/86
Cadmium	ND 0.01	1/9/86	1/10/86
Chromium	ND 0.01	1/9/86	1/10/86
Copper	0.04	1/9/86	1/10/86
Lead	ND 0.1	1/9/86	1/10/86
Mercury	ND 0.002	1/9/86	1/15/86
Nickel	ND 0.01	1/9/86	1/10/86
Selenium	ND 0.007	1/15/86	1/10/86
Silver	0.03	1/9/86	1/10/86
Thallium	ND 0.1	1/9/86	1/24/86
Zinc	0.03	1/9/86	1/10/86
Cyanide	ND 0.004	1/14/86	1/15/86
Phenol	ND 0.03	1/24/86	1/27/86

ND=None detected, less than ,
Sample filtered through a 0.45 micron filter prior to analysis.

Petroleum Hydrocarbons

Sample Identity:	BBDC1	BBDC2	BBDC3	BBDC5	BBDC6
		Milligrams/liter			
Petroleum Hydrocarbons	2.8	3.7	4.8	2000	1.8

Date Extracted: 1/9/86
Date Analyzed: 1/10/86

Micrograms/liter

	BEDC4
Fluoranthene	ND-10
Fluorene	ND-10
Heptachlor	ND-10
Heptachlor epoxide	ND-10
Hexachlorobenzene	ND-10
Hexachlorobutadiene	ND-10
Hexachloroethane	ND-10
Indeno(1,2,3-cd)pyrene	ND-40
Isophorone	ND-10
Naphthalene	14
Nitrobenzene	ND-10
N-Nitrosodi-n-propylamine	ND-10
PCB-1016	ND-10
PCB-1221	ND-10
PCB-1232	ND-10
PCB-1242	ND-10
PCB-1248	ND-10
PCB-1254	ND-10
PCB-1260	ND-10
Phenanthrene	ND-10
Pyrene	ND-10
Toxaphene	ND-10
1,2,4-Trichlorobenzene	ND-10
Benzidine	ND-50
α-BHC	ND-10
γ-BHC	ND-10
Endosulfan I	ND-10
Endosulfan II	ND-10
Endrin	ND-10
Hexachlorocyclopentadiene	ND-50
N-Nitrosodimethylamine	ND-10
N-Nitrosodiphenylamine	ND-10

ND=None detected, less than

Gollob Analytical Service

MOLININI-GOLLOB, INC.

47 INDUSTRIAL ROAD. BERKELEY HEIGHTS. NEW JERSEY 07922 • TEL. (201) 464

Dan Raviv Associates, In

MAR 6 1986

RECEIVED

TO: Dr. D. Raviv
Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 60122

Date Requested: 2/5/86
Date Reported: 3/5/86
P.O. No. 84C182

MATERIAL SUBMITTED. 31 (Thirty One) Soil Samples - BBD

INFORMATION REQUESTED: Gas Chromatography, Petroleum Hydrocarbon Analyses

NOTEBOOK REFERENCE:

RESULT OF INVESTIGATION

Samples previously submitted under the following G.A.S. numbers: 59359, 59360, 59652, 59411, 59397, 59764 have been analyzed for the constituents requested. The following samples were not available for re-analysis: BBD10/2', BBD17/2-3', BBD18/2', BBD18/3'.

Holding times on all samples have been exceeded. However, the analyses are being performed for the purpose of delineation only.

Results are presented in the attached tables.

By _____
GOLLOB ANALYTICAL SERVICE

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

Dan Raviv Associates, Inc.
84C182
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TO: Dr. Dan Raviv
Dan Raviv Associates
5 Central Avenue
West Orange, N.J. 07052

G.A.S. REPORT No. 60535 Formerly(59337

Date Requested: 11/1/85
Date Reported: 12/23/85
P.O. No. 84C182

MATERIAL SUBMITTED: 30 (Thirty) Samples BBD1 (3 Analyzed)

INFORMATION REQUESTED: Gas Chromatography/Mass Spectrometry Analysis

NOTEBOOK REFERENCE: LM 1183, Page 1

RESULT OF INVESTIGATION

This completes the analysis of subject samples for the presence of Base Neutral and Acid Extractible constituents.

All data are presented in the attached tables.

n 32786

By _____
GOLLOB ANALYTICAL SERVICE

Acid Extractable Constituents

Sample Identity:	Milligrams/kilogram BBD 13/1	BBD 15/1	BBD 12/1
4-Chloro-3-methylphenol	ND 0.5	ND 0.5	ND 0.5
2-Chlorophenol	ND 0.5	ND 0.5	ND 0.5
2,4-Dichlorophenol	ND 0.5	ND 0.5	ND 0.5
2,4-Dimethylphenol	ND 0.5	ND 0.5	ND 0.5
2,4-Dinitrophenol	ND 0.5	ND 0.5	ND 0.5
2-Methyl-4,6-dinitrophenol	ND 0.5	ND 0.5	ND 0.5
2-Nitrophenol	ND 0.5	ND 0.5	ND 0.5
4-Nitrophenol	ND 0.5	ND 0.5	ND 0.5
Pentachlorophenol	ND 0.5	ND 0.5	ND 0.5
Phenol	ND 0.5	ND 0.5	ND 0.5
2,4,6-Trichlorophenol	ND 0.5	ND 0.5	ND 0.5
Date Extracted:	11/13/86	11/13/86	11/13/86
Date Analyzed:	12/5/86	12/6/86	12/6/86

ND=None detected, less than

Petroleum Hydrocarbons (Infrared Analysis - EPA 418.1)

Sample Identity	Petroleum Hydrocarbons milligrams/kilograms	Extracted	Analyzed
BBD 17/S	16000	11/12/85	11/14/85
BBD 17/1'	9210	11/12/85	11/14/85
BBD 18/1'	16300	11/12/85	11/14/85
BBD 19/1'	4330	11/12/85	11/14/85
BBD S1	23700	11/12/85	11/14/85
BBD W1	670	11/13/85	11/14/85
BBD S3	850	11/13/85	11/14/85
BBD S4	39400	11/13/85	11/14/85

Note: Dioxin & B/N Extractibles will be reported at a later date.

Metals-Atomic Absorption Analysis

Sample Identity:	BBD 17/1'
Constituents	milligrams/kilograms
Antimony	6.0
Arsenic	56
Beryllium	0.50
Cadmium	6.56
Chromium	2300
Copper	128
Lead	370
Mercury	1.6, 2.3*
Nickel	56.8
Selenium	0.023
Silver	1.7
Thallium	ND 0.4
Zinc	5040

ND=none detected, less than *Duplicate Analysis

Date Extracted: 11/11/85 Date Analyzed: 11/14/85

Chemical Analysis

Sample Identity:	BBD 17/1'
Constituents	milligrams/kilogram
Cyanide	0.5
Phenol	20

Date Extracted: 11/13/85
Date Analyzed: 11/14/85

Polychlorinated Biphenyls-(Electron Capture Detector & Hall Electrolytic Conductivity Detection)

Constituent:	Arochlor 1248	Arochlor 1254
Sample Identity	Concentration, ppm by Weight	
BBD 17/S	14	14
BBD 18/1'	125	195
BBD 19/1'	3.4	34
BBD S1	33	97
BBD S2	45	35
BBD S4	3.1	8.0
	Concentration, ppb by Weight	
BBD W1	ND 1	ND 1

Date Extracted: 11/7/85
Date Analyzed: 11/15/85

ND=none detected, less than

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

Dan Raviv Associates
84C182
JAN 1
RECEIVED

TO: Dr. Dan Raviv
Dan Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59764

Date Requested: 12/17/85
Date Reported: 1/14/86
P.O. No. 84C182

MATERIAL SUBMITTED: 14 (Fourteen) Soil Samples (BBD)

INFORMATION REQUESTED: Gas Chromatography & Infrared Analyses

NOTEBOOK REFERENCE: GC/MS 1157, Pg. 3; SW 1116, Pg. 50

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 12/17/85, have been analyzed for the constituents requested and listed in the tables attached.

n 11586

By _____
GOLLOB ANALYTICAL SERVICE

Petroleum Hydrocarbon Analysis (Infrared)

Sample Identity	Petroleum Hydrocarbons Milligrams/kilogram
BBDC3/5-7'	59,000
BBDC4/5-7'	3,100, 3,600
BBDC4/10-12'A	34
BBDC4/10-12'B	82
BBDC4/15-17'	ND 10
BBDC3/15-17'	28
BBDC3/20-22'	58

Samples Extracted 1/2/86
Samples Analyzed 1/3/86

Polychlorinated Byphenyls Analysis (ECGC) Sample Identity	Arochlor 1248 Concentration, Milligrams/Kilogram	Arochlor 1254
BBDC3/20-22'	ND 1	ND 1
BBDC4/15-17'	ND 1	ND 1
BBDC4/10-12'A	ND 1*	ND 1
BBDC4/10-12'B	ND 1	ND 1
BBDC3/15-17'	ND 1*	ND 1
BBDC4/5-7'	1.4	2.0
BBDC3/5-7'	67	74

*Trace detected below the threshold reported.
Samples Extracted 12/10/85
Samples Analyzed 12/19/& 12/23/85

ND=none detected, less than

Dr. Dan Raviv
Dan Raviv Associates

Concentration, ppb by Weight

Volatile Organic Analysis by EPA Method 624 (Duplicates) Soil Samples

Sample Identification: Pollutants	BBDC1 0-3'	BBDC1 5-7'	BBDC2 5-7'	BBDC2 5-7'	BBDC2 10-12'		
Chloromethane	ND 20				ND 20		
Bromomethane							
Vinyl Chloride							
Chloroethane							
Methylene Chloride							
Trichlorefluoromethane							
1,1,-Dichloroethylene							
1,1-Dichloroethane							
1,2-Dichloroethylene							
Chloroform							
1,2-Dichloroethane							
1,1,1-Trichloroethane							
Carbon Tetrachloride							
Bromodichloromethane							
1,2-Dichloropropane							
trans-1,3-Dichloropropene							
Trichloroethylene							
Benzene		410	50	51			
Dibromochloromethane							
cis-1,3-Dichloropropene							
1,1,2-Trichloroethane							
2-Chloroethylvinyl Ether							
Bromoform							
1,1,2,2-Tetrachloroethene							
1,1,2,2-Tetrachloroethane							
Toluene			71	— 84			
Chlorobenzene							
Ethylbenzene		2300					
1,3-Dichlorobenzene							
1,2 & 1,4-Dichlorobenzene							
Non Priority Pollutants							
Carbon Disulfide (Estimated)	ND			20	36		
Methyl Isobutyl Ketone (Est.)			120	120			
Xylenes (Actual)		800	130	140			
C_9H_{10} Isometric (Estimated)		1100					
C_9H_{12} Isometric (Estimated)		260					

ND=None detected, less than

Detection threshold 20 ppb by Weight

Gollob Analytical Service

47 INDUSTRIAL ROAD
BERKELEY HEIGHTS, NEW JERSEY 07922
TEL. (201) 464-3331

MOLININI-GOLLOB, INC.

March 19, 1986

Dan Raviv Associates

84C182

MAR 2 . 1986

RECEIVED

Dear Mike:

As per our recent phone conversation, please destroy the 1st page of G.A.S. 59883 and replace with the enclosed copies.

Thank you.

Lou Molinini

t

Gollob Analytical Service

Dan Raviv Associates, Inc.

DEC 23 '85

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

TO Dr. Dan Raviv
Dan Raviv Associates
5 Central Avenue
West Orange, N.J. 07052

G.A.S. REPORT No. 59652

Date Requested: 12/4/85
Date Reported: 12/13/85
P.O. No. 84C182

MATERIAL SUBMITTED: 7 (Seven) Soil Samples (Bayonne Barrel)

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: GC/MS 1148, Page 1 and CM 1084, Page 144

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 12/4/85, have been analyzed for the constituents requested, and are listed in the attached table.

n 122085

By Victor L. [illegible]
GOLLOB ANALYTICAL SERVICE

Petroleum Hydrocarbon Analysis by Infrared Spectroscopy

Sample Identity	Quantity Milligrams/kilograms
BBDC1/0-2'	830
BBDC1/10-12'	410
BBDC2/5-7'	670
BBDC2/10-12'	14

Samples Extracted 12/9/85
Samples Analyzed 12/9/85

Polychlorinated Biphenyls - ECD & HECD

Sample Identity	Concentration, ppm by Weight*
BBDC1/0-2'	10.3
BBDC1/0-2' Duplicate	8.7
BBDC1/10-12'**	ND 1
BBDC2/5-7'	2.0
BBDC2/10-12'**	ND 1

Samples Extracted 12/5/85
Samples Analyzed 12/11/85

*Based on Arochlor 1260

**Determined by Electron Capture Detection, all others by Hall Electrolytic Conductivity Detection.

ND=None detected, less than

Volatile Organics - EPA Method 624

All data are presented in the attached table.

Perry Associates

Volatile Organic Analysis by EPA Method 624 — Soil — Water

Sample Identification: Pollutants BBD-	17/S	17/1'	17/1' Dup.	19/1'	S2	S4	20	W1					
Chloromethane				ND 20	ND 20		ND 5	ND 5					
Bromomethane													
Vinyl Chloride	170	89	170										
Chloroethane	33												
Methylene Chloride	740	130	91										
Trichlorofluoromethane													
1,1,-Dichloroethylene	28												
1,1-Dichloroethane	1000	250	240										
1,2-Dichloroethylene	1100	150	120										
Chloroform	100	41	21										
1,2-Dichloroethane	78	36	32										
1,1,1-Trichloroethane	850	510	211										
Carbon Tetrachloride													
Bromodichloromethane													
1,2-Dichloropropane	52												
trans-1,3-Dichloropropene													
Trichloroethylene	830	240	210										
Benzene	220	130	87										
Dibromochloromethane													
cis-1,3-Dichloropropene													
1,1,2-Trichloroethane	220	100	92										
2-Chloroethylvinyl Ether													
Bromoform													
1,1,2,2-Tetrachloroethene	290	94	71										
1,1,2,2-Tetrachloroethane													
Toluene	14000	7500	6400			39							
Chlorobenzene	49	30	22										
Ethylbenzene	2700	2200	1600										
1,3-Dichlorobenzene													
1,2 & 1,4-Dichlorobenzene	93	61	79										

Detection threshold 20 ppb by weight for soils & 5 ppb by weight for water

*Chemical detected, less than

Non Priority Pollutants

Sample Identity: BBD-	Soils 17/S	17/1'	17/1'*	19/1'	S2	S4	Water 20
Constituents	Concentration, ppb by Weight						
m-Xylene	3900			ND 20	ND 20		ND 5
o/p Xylene	3400						
Cyclopropane	30						
Acetone	70	130	130			25	
Dimethyl Sulfide	30						
Isopropanol	50						
Carbon Disulfide	50	30	15				
Methyl Ethyl Ketone	110	170	140				
Freon 113	20						
Cyclohexane	50	40	20				
Hexane	25	25	15				
Methyl Isobutyl Ketone	550	730	500				
4-Methyl-2-Pentanol	140	160	85			20	
C_6H_{12} Aliphatic Hydrocarbons	100	30	35				
C_7H_{14} Aliphatic Hydrocarbons	120	40	80				
C_9H_{12} Aromatic Hydrocarbons	60	40	35				
C_9H_{12} Aromatic Hydrocarbons	80	60	55				
C_9H_{12} Aromatic Hydrocarbons	300	190	200				
C_9H_{12} Aromatic Hydrocarbons	150	120	90				
Styrene	450	---	280				

Note: These are estimated values.

*Duplicate

ND=none detected, less than 20 ppb by weight for soil & 5 ppb by weight for water.

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

-Thursday 1/2

PROJECT NO. 84182 PROJECT NAME Bayonne Barrel & Drum

LOCATION Newark, NJ LABORATORY Gollob

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD 17/5	Soil	10/31/85	0845	1 qt	M Zeh	VOA, TPHC, PCB
BBD 17/1'	Soil	10/31/85	0850	4/2 qt, ½ pt	M Zeh	(1) PP, TPHC DIOXIN (2
BBD 17/2-3'	Soil	10/31/85	0856	1 qt	M Zeh	
BBD 17/5-7'	Soil	10/31/85	0941	1 qt	M Zeh	
BBD 17/9-11'	Soil	10/31/85	1058	1 qt	M Zeh	
BBD 18/1'	Soil	10/31/85	1232	2/1 qt, ½ pt	M Zeh	TPHC, PCB
BBD 18/2'	Soil	10/31/85	1244	1 qt	M Zeh	
BBD 18/3'	Soil	10/31/85	1256	1 qt	M Zeh	
BBD 20	Water	10/31/85	1325	2 x 40 ml	M Zeh	VOA
BBD 19/1'	Soil	10/31/85	1348	2/1 qt, ½ pt	M Zeh	VOA, TPHC, PCB
BBD 19/2'	Soil	10/31/85	1352	1 qt	M Zeh	
BBD 19/3'	Soil	10/31/85	1358	1 qt	M Zeh	

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M. Zeh	10/31/85	[illegible]	
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
[illegible]	11/1/85 - 1800	[illegible]	Good
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: [illegible] Authorization for Disposal: _____

Laboratory Job No: _____ Type of Disposal: _____

Date/Time: 11-1-85 1800 Date of Disposal: _____

(1) Thoroughly mix contents of quart jar and the one-pint jars together to homogenize sample. one-half-pint jar is for VOA.

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

Thursday 2/2

PROJECT NO. 84C182 PROJECT NAME Bayonne Reviel + Drum

LOCATION Newark, NJ LABORATORY GeoLab

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBDS1	Sediment	10/31/85	1430	1 9T	M Zeh	TPHC, PCB
BBDW1	Water	10/31/85	1436	1 9T	M Zeh	TPHC, PCB
BBDS2	sediment	10/31/85	1448	2 x 1 9T	M Zeh	VOA, PCB
BBDS3	sediment	10/31/85	1527	2 x 1 9T	M Zeh	TPHC
BBDS4	sediment	10/31/85	1544	2 x 1 9T	M Zeh	VOA, TPHC, PCB

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M Zeh	10/31/85		
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
	11/1/85 - 800		Good
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: _____ Authorization for Disposal: _____

Laboratory Job No: _____ Type of Disposal: _____

Date/Time: 11-1-85 1400 Date of Disposal: _____

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

Jersey
2/2

PROJECT NO. 84C182 PROJECT NAME Bayonne

LOCATION Newark, NJ LABORATORY Go1103

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD12/2'	Soil	10/29/85	1323	1 qt		
BBD12/3'	Soil	10/29/85	1331	1 qt		
BBD13/1'	Soil	10/29/85	1423	2; 1 qt, ½ qt		VOA, TPHC, PCB
BBD13/2'	Soil	10/29/85	1430	1 qt		
BBD13/3'	Soil	10/29/85	1440	1 qt		
BBD13/4'	Water	10/29/85	1520	2 x 40 ml		VOA

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M. [illegible]	10/31/85 1715	[illegible]	on ice
Relinquished By: [illegible]	Date/Time: 10/31/85 1809	Received By: [illegible]	Comments/Condition: on ice
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: [illegible] Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 11/1/85 1410 Date of Disposal:

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

Wednesday
1/1

PROJECT NO. 846182 PROJECT NAME Bayonne Barrel & Drum

LOCATION Newark, NJ LABORATORY Golder

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD4/1'(FP)	Soil	10/30/85	0752	4; 2x pt, ½pt		PP,(1) TPHC
BBD14/1'(FP)	Soil	10/30/85	0824	4; 2x pt, ½pt		PP, TPHC
BBD15/1'	Soil	10/30/85	0904	2; pt, ½pt		TPHC, PCB, METALS
BBD15/2'	Soil	10/30/85	0931	1 pt		
BBD15/3'	Soil	10/30/85	0937	1 pt		
BBD15/5-7'	Soil	10/30/85	0954	1 pt		VOA, TPHC
BBD15/9-11'	Soil	10/30/85	1026	1 pt		
BBD15/12-14'	Soil	10/30/85	1058	1 pt		
BBD15/15'	water	10/30/85	1228	2x40ml		VOA
BBD16/1-2'	Soil	10/30/85	1330	2; pt, ½pt		VOA
BBD16/5-5'	Soil	10/30/85	1415	1x½ pt		PP, TPHC(2)
BBD16/5-8'/8-10'	Soil	10/30/85	1415/1425	1 pt		PP, TPHC(2)

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
	10/31/85 1715		on ice
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
	10/31/85 1809		on ice
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 10/31/85 1810 Date of Disposal:

(1) PP = Priority Pollutants Analyses.

(2) Samples BBD16/5-8' and BBD16/5-8'/8-10', should be combined before PP, TPHC analyses.

Tuesday
1/2

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Barrel + Drum

LOCATION Newark, NJ LABORATORY Gouch

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD2/5-7'	Soil	10/29/85	0749	1 9t	M Zuck	
BBD2/9-11'	Soil	10/29/85	0809	1 9t	M Zuck	
BBD2/13-15'	Soil	10/29/85	0834	1 9t	M Zuck	
BBD1/5-7'	Soil	10/29/85	1034	2; 1 9t	M Zuck	
BBD10/1'	Soil	10/29/85	1113	1 9t	M Zuck	TPHC
BBD10/2'	Soil	10/29/85	1117	1 9t	M Zuck	
BBD10/3'	Soil	10/29/85	1119	1 9t	M Zuck	
BBD11/1'	Soil	10/29/85	1234	1 9t	M Zuck	TPHC, METALS (1)
BBD11/2'	Soil	10/29/85	1241	1 9t	M Zuck	TPHC
BBD11/3'	Soil	10/29/85	1246	1 9t	M Zuck	
BBD12/1'	Soil	10/29/85	1315	1 9t	M Zuck	TPHC, PCB
BBD12/1'	Soil	10/29/85	1518	1 1/2 pt	M Zuck	VOA

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M. Zuck	10/31/85 1715		on ice
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
	10/31/85 1809		on ice
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 10/31/85 1810 Date of Disposal:

(1) METALS ANALYSES: As, Ba, Cd, Cr, Pb, Hg, Ag, Se.

SAMPLE ANALYSIS REQUEST FORM

Job Number: 84C132 Job Location: Newark, New Jersey

Samples Collected by : _____ Sampling Date: 1/1 12/23/85 - 1/31/85 & 4/27/85 - 12/13/--

Time Sampling began : : : finished : : :

Collection Method : Boring

Sampling Equipment Used: Split Spoon

Sample Matrix : Soil

Was Chain of Custody Implemented : YES ✓ NO _
Were Samples Delivered to Lab on Ice: YES _ NO _

ANALYSIS REQUESTED

Parameter	Container ID	Detection Limit	Preservative Used	Requested Turnarcund Time (days)
TPHC	BBD15/3'			
TPHC	BBD15/9-11'			
TPHC, PCB	BBD16/1.5-2'			
TPHC, PCB	BBD17/2-3'			
TPHC	BBD17/5-7'			
TPHC, PCB	BBD18/2'			
TPHC, PCB	BBD18/3'			
TPHC, PCB	BBD19/2'			
TPHC, PCB	BBD19/3'			
TPHC, PCB	BBDC1/5-7'			
TPHC, PCB	BBDC3/0.5-2.5' 2.5-4.5'			
TPHC, PCB	BBDC3/10-12'			

COMMENTS: _____

ANALYSIS REQUESTED BY : HJ

PERSON ACCEPTING SAMPLE: H. Kellers Date: 2/5/86 Time: 09:12

LAB NAME: Envirotech Inc.

Monday 9/2

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Bond & Dum

LOCATION Newark LABORATORY Gollob

SAMPLE NO.	TYPE (~~WATER~~/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD 7/1'	Soil	10/28/85	0805	1 Gt	M Zuk	TPHC
BBD 7/2'	Soil	10/28/85	0808	1 Gt	M Zuk	
BBD 7/3'	Soil	10/28/85	0814	1 Gt	M Zuk	
BBD 8/1'	Soil	10/28/85	0909	1 Gt	M Zuk	VOA, TPHC, METALS(1)
BBD 8/2'	Soil	10/28/85	0914	1 Gt	M Zuk	
BBD 8/3'	Soil	10/28/85	0919	1 Gt	M Zuk	
BBD 9/1'	Soil	10/28/85	0949	1 Gt	M Zuk	TPHC, PCB
BBD 9/2'	Soil	10/28/85	0954	1 Gt	M Zuk	
BBD 9/3'	Soil	10/28/85	0957	1 Gt	M Zuk	TPHC
BBD 9/5-7'	Soil	10/28/85	1053	1 Gt	M Zuk	
BBD 9/7-9'	Soil	10/28/85	1059	1 Gt	M Zuk	
BBD 9/9-11'	Soil	10/28/85	1109	1 Gt	M Zuk	

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M Zuk	10/29/85 1814	H Dilliaen	Broad/iced
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: H Dilliaen Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: Date of Disposal:

(1) METALS ANALYSES: As, Ba, Cd, Cr, Pb, Hg, Ag, Se.

Handout J
2/2

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C192 PROJECT NAME Bayonne Barrel & Drum

LOCATION Newark LABORATORY Go1103

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD8/5-7'	Soil	10/28/85	1202	1 Gt	H Zeek	
BBD8/9-11'	Soil	10/28/85	1305	1 Gt	H Zeek	
BBD4/5-7'	Soil	10/28/85	1358	1 Gt	H Zeek	
BBD4/9-11'	Soil	10/28/85	1421	1 Gt	H Zeek	
BBD4/13-15'	Soil	10/28/85	1451	1 Gt	H Zeek	

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
H. Zeek	10/28/85 1814	H D'Allaeo	Good/cool
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: H D'Allaeo Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: Date of Disposal:

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Barrel and Drum Co.

LOCATION Newark LABORATORY Gollob

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
BBD 1	Soil	1/18/85	9:40	1 QT	DJ Monow	PCB's
BBD 2	Soil	1/18/85	10:00	1 QT	DJ Monow	PCB's
BBD 3	Soil	1/18/85	10:20	1 QT	M. Zucker	PCB's
BBD 4	Soil	1/18/85	11.15	1 QT	M Zucker	PCB's
BBD 5	Soil	1/18/85	11:00	1 QT	M Zucker	PCB's
BBD 6	Soil	1/18/85	10:45	1 QT	M Zucker	PCB's
BBD 7	Soil	1/18/85	12:35	1 QT	M Zucker	PCB's
BBD 8	Soil	1/18/85	13:00	1 QT	M Zucker	PCB's
BBD 9	Soil	1/18/85	13:40	1 QT	M Zucker	PCB's
BBD 10	Soil	1/18/85	13:10	1 QT	DJ Monow	EP-TOXICITY
BBD 11	Soil	1/18/85	12:10	1 QT	DJ Monow	PCB's
BBD 12	Soil	1/18/85	12:20	1 QT	M Zucker	PCB's

Relinquished By:	Date/Time:	Received By:	Comments/Condition:
M Zucker	1/18/85 4:00P	DJ Monow	Good.
Relinquished By:	Date/Time:	Received By:	Comments/Condition:
David J Monow	1/18/85 17:12	[illegible]	Good
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: [illegible] Authorization for Disposal: _____

Laboratory Job No: _____ Type of Disposal: _____

Date/Time: 1/18/85 1711 hrs Date of Disposal: _____

DAN RAVIV ASSOCIATES, INC.
WEST ORANGE, NEW JERSEY 07052
CHAIN OF CUSTODY RECORD

PROJECT NO. 84C182 PROJECT NAME Bayonne Barrel and Drum Co

LOCATION Newark LABORATORY Golob

SAMPLE NO.	TYPE (WATER/SOIL)	DATE	TIME	TOTAL # OF CONTAINERS	SAMPLERS SIGNATURE	REMARKS
B8D 13	Soil	1/18/85	12:30	1 QT	DJ Monow	PCB's
B8D 14	Soil	1/18/85	14:10	1 QT	DJ Monow	PCB's

Relinquished By: M Zucker	Date/Time: 1/18/85 4:00p	Received By: DJ Monow	Comments/Condition: Good.
Relinquished By: David J Monow	Date/Time: 1/18/85 17:12	Received By: [illegible]	Comments/Condition: Good
Method of Shipment:	Shipped By:	Received By:	Comments/Condition:

Received for Laboratory: [illegible] Authorization for Disposal:

Laboratory Job No: Type of Disposal:

Date/Time: 1/18/85 1712 hrs Date of Disposal:

Petroleum Hydrocarbon Analysis

Sample Identification	TPHC (Milligrams/kilogram)	Date Extracted	Date Analyzed
BBD 1(0-1')	1990	11/5/85	11/14/85
BBD 2(0-1')	1390	11/5/85	11/14/85
BBD 3(0-1')	4410	11/5/85	11/14/85
BBD 4(1'-2')	10,500	11/5/85	11/14/85
BBD 5(0-1')	23,800	11/5/85	11/14/85
BBD 6(0-1')	640 (650)*	11/5/85	11/14/85

*Duplicate Determination

PCB Analysis

Sample Identification	PCB (Milligrams/kilogram)		
BBD 3 (0-1')	42*	11/7/85	11/12/85

The chromatographic fingerprint is characteristic of Arochlor 1248.

Volatile Analysis

Subject samples have been analyzed for volatile organics according to EPA Method 624. No volatile constituents were detected in either sample.

Sample Identification	Volatiles (PPB by Wgt.)		
BBD 1 (0-1')	ND 20	10/31/85	11/5/85
BBD 2 (0-1')	ND 20	10/31/85	11/5/85

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

TO: Dr. Dan Raviv
Dan Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59360

Date Requested: 10/29/85
Date Reported: 11/22/85
P.O. No. 84C182

MATERIAL SUBMITTED: 17 (Seventeen) Soil Samples (Seventeen Soil Samples Extracted - 4 Analyzed)

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: SW 1137, Page 1 GC/MS 1057, Pg. 78

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 10/29/85, have been analyzed for the constituents requested, and listed in the attached tables.

n 112785

By _____
GOLLOB ANALYTICAL SERVICE

EP Toxicity Test

Metals

Sample Identity:	BBD-10
Constituents	Concentration, milligrams/liter
Arsenic	0.002
Barium	ND 1
Cadmium	0.21
Chromium, total	ND 0.02
Lead	2.6
Mercury	0.0004
Selenium	0.001
Silver	ND 0.02

Pesticides

	micrograms/liter
Endrin	ND 1
Lindane	ND 1
Methoxychlor	ND 1
Toxaphene	ND 1
Herbicides	
2,4-D	ND 1
2,4,5-TP	ND 1

ND=none detected, less than

Gollob Analytical Service

MOLININI-GOLLOB, INC.

47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

Dan Raviv Associates, Inc.

NOV 2 0 1985

RECEIVED

TO: Dr. D. Raviv
Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59

Date Requested: 10/29/85
Date Reported: 11/5/85
P.O. No. 84C182

MATERIAL SUBMITTED: 18 (Eighteen) Soil Samples - Bayonne Barrel & Drum

INFORMATION REQUESTED: Gas Chromatography/Mass Spectrometry, Infrared and Gas Chromatography Analyses

NOTEBOOK REFERENCE: GC/MS 1057, Page 78 and SW 1137, Page 1

RESULT OF INVESTIGATION

Subject samples, hand delivered on 10/28/85, have been analyzed for the constituents requested.

All data are presented in the attached tables.

n111985

By _____
GOLLOB ANALYTICAL SERVICE

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201)

Dan Raviv Associates, Inc.
84C182
JAN 1337 12:55

RECEIVED

TO: Dr. D. Raviv
Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59397

Date Requested: 11/1/85
Date Reported: 12/26/85
P.O. No. 84C182

MATERIAL SUBMITTED: 30 (Thirty) Samples- (BBD)

INFORMATION REQUESTED: Gas Chromatography, Gas Chromatography/Mass Spectrometry Analyses

NOTEBOOK REFERENCE: GC/MS 1057 page 78, AP 1089 page 67, SW 1138 page 1

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 11/1/85, have been analyzed for the constituents requested and listed in the attached tables.

t 123085

By _____
GOLLOB ANALYTICAL SERVICE

Polychlorinated Biphenyls Analysis (PCB'S) (ECGC*)

Constituent:	PCB	
Sample Identity	Concentration, ppm by Weight	Arochlor Type
BBD 12/1'	2	1248
	4	1254
BBD 13/1'	30	1248
	25	1254
BBD 15/1'	8	1254

Samples Extracted 11/5/85
Samples Analyzed 11/14/85

*Electron Capture Gas Chromatography

Petroleum Hydrocarbons (Infrared Analysis)

Constituent:	Petroleum Hydrocarbons
Sample Identity	milligrams/kilograms
BBD4/1'	6040
BBD 14/1'	460
BBD 15/1'	1820, 1820
BBD 15/5-7'	3740
BBD 16/5-8'-8-10'*	410
BBD 10/1'	580
BBD 11/1'	4450
BBD 11/2'	760
BBD 12/1'	100
BBD 13/1'	8260

*Composited

Samples Extracted 11/11/85
Samples Analyzed 11/14/85

(Continued) Sample BBD 17/1'

	milligrams/kilogram
Fluoranthene	ND
Fluorene	ND
Heptachlor	ND
Heptachlor epoxide	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodi-n-propylamine	ND
PCB-1016	ND
PCB-1221	ND
PCB-1232	ND
PCB-1242	ND
PCB-1248	ND
PCB-1254	ND
PCB-1260	ND
Phenanthrene	ND
Pyrene	ND
Toxaphene	ND
1,2,4-Trichlorobenzene	ND
Benzidine	ND
α-BHC	ND
γ-BHC	ND
Endosulfan I	ND
Endosulfan II	ND
Endrin	ND
Hexachlorocyclopentadiene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
2-Methyl Naphthalene	15.5

ND=none detected, less than 0.5

Date Extracted: 11/13/85

Date Analyzed: 12/5/85

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 23217
Batch/Shipment No.

Report Date: 12-17-85
Column: SP-2331

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Co
23217MB	METHOD BLANK	Y	10.00	ND	0.021	8	12/17/85	20:22:00	-	0.81	1.02	102	-	-	-	650301	688667	850474	
23217-1	59411 BBD 17/1*	Y	10.11	ND	0.320	8	12/17/85	19:27:00	-	0.71	0.92	93	-	-	-	31101	33520	47026	

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
MS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction
MPC = Maximum Possible Concentration

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

FORM B-1

Gollob Analytical Service

MOLININI-GOLLOB, INC.
47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

Dr. D. Raviv
Raviv Associates
5 Central Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 60209 (Originnally 59411)
Date Requested: 11/5/85
Date Reported: 2/13/86
P.O. No. 84C182

MATERIAL SUBMITTED: 1 (One) Soil Sample - BBD-17/1'

INFORMATION REQUESTED: Gas Chromatography/Mass Spectrometry Analysis

NOTEBOOK REFERENCE: LM 1134 page 74

RESULT OF INVESTIGATION

Subject sample, hand delivered to G.A.S., has been analyzed for the constituents requested and listed in the attached tables.

This completes G.A.S. 59411.

t 21986

By _____
GOLLOB ANALYTICAL SERVICE

Base Neutral & Pesticide Extractables

milligrams/kilogram

Sample Identity:	BBD 17/1'
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Aldrin	ND
Benzo(a)anthracene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Benzyl butyl phthalate	19.3
β-BHC	ND
d-BHC	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-ethylhexyl)phthalate	ND
Bis(2-chloroisopropyl)ether	ND
4-Bromophenyl phenyl ether	ND
Chlordane	ND
2-Chloronaphthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
4,4'-DDD	ND
4,4'-DDE	ND
4,4'-DDT	ND
Dibenzo(a,h)anthracene	ND
Di-n-butylphthalate	17.0
1,3-Dichlorobenzene	ND
1,2-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3'-Dichlorobenzidine	ND
Dieldrin	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octylphthalate	ND
Endosulfan sulfate	ND
Endrin aldehyde	ND

ND=none detected, less than 0.5
Date Extracted: 11/13/85
Date Analyzed: 12/5/85

Raviv Associates

Volatile Organic Analysis by EPA Method 624

Sample Identification:		Soil			Water	Soil	Water	Soil			Water
Pollutants	BBD-	4/1'	12/1'	13/1'	13/4'	15/5-7'	15/15'	14/1'	16/1-2'	16' Composite	Blank
Chloromethane					ND 5		ND 5	ND 20			ND
Bromomethane											
Vinyl Chloride											
Chloroethane											
Methylene Chloride											
Trichlorofluoromethane											
1,1,-Dichloroethylene											
1,1-Dichloroethane											
1,2-Dichloroethylene											
Chloroform											
1,2-Dichloroethane											
1,1,1-Trichloroethane											
Carbon Tetrachloride											
Bromodichloromethane											
1,2-Dichloropropane											
trans-1,3-Dichloropropene											
Trichloroethylene											
Benzene		55		29		60			57	30	
Dibromochloromethane											
cis-1,3-Dichloropropene											
1,1,2-Trichloroethane											
2-Chloroethylvinyl Ether											
Bromoform											
1,1,2,2-Tetrachloroethene											
1,1,2,2-Tetrachloroethane											
Toluene		360		210					930		
Chlorobenzene											
Ethylbenzene		8600	52	810		87			830		
1,3-Dichlorobenzene											
1,2 & 1,4-Dichlorobenzene											
*5-8' + 5-8'/8-10'											
Non Priority Pollutants Detected											
1-Butanol		50			ND 5		ND 5	ND 20			
C_7H_{16} Aliphatic Hydrocarbon		35									
C_7H_{14} Aliphatic Hydrocarbon		190		70						70	
C_8H_{16} Aliphatic Hydrocarbon		30								30	
m-Xylene		28000	38	1500					1400	43	
o/p Xylene		28000	47	1200					1200	23	
C_9H_{12} Aromatic Hydrocarbon		430		130		910			40		
C_9H_{12} Aromatic Hydrocarbon		3400		330		580					
C_9H_{10} Aromatic Hydrocarbon		2600	75	150		300					
C_9H_{12} Aromatic Hydrocarbon		3300	31	60		550					

Note: Numerous aromatic constituents eluted after the GC/MS data file was full and are not reported.
The values for the above compounds are estimated except for xylene.

Detection threshold 20 ppb by Weight for soil and 5 ppb by Weight for water

Date Extracted: 11/5/85 Date Analyzed: 11/6/85

Gollob Analytical Service

MOLININI-GOLLOB, INC.

47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

Env. Res. Associates Inc.

84C182

TO Dr. D. Raviv
Raviv Associates
5 Cenral Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 59411

Date Requested: 11/5/85
Date Reported: 12/20/85
P.O. No. 84C182

MATERIAL SUBMITTED. 15 (Fifteen) Soil Samples - (8 Analyzed)
2 (Two) Water Samples

INFORMATION REQUESTED: Infrared, Atomic Absorption, Chemical, Gas Chromatography & Gas Chromatography/Mass Spectrometry Analyses

NOTEBOOK REFERENCE: AP 1089 page 67, GC/MS 1054 page 98, SW 1137 page 7

RESULT OF INVESTIGATION

Subject samples, hand delivered to G.A.S. on 11/5/85, have been analyzed for the constituents requested and listed in the attached tables.

t 122685

By Victor Gollob
GOLLOB ANALYTICAL SERVICE

Chemical Analysis

Constituents:	Cyanide	Phenol
Sample Identity	milligrams/kilogram	
BBD 4/1'	2	15
BBD 14/1'	ND 0.1	ND 0.5
BBD 16/5-8' & 8-10'*	ND 0.1	2.8

*Composited

Samples extracted 11/13/85

Samples analyzed 11/18/85

Atomic Absorption Analysis

Sample Identity:	BBD-4/1'	BBD-14/1'	BBD-15/1'	BBD-16/5-8' 8-10'*	BBD-11/1'
	milligrams/kilogram				
Antimony	13	8.4	--	4.0	--
Arsenic	17	8.4	55	2.9	51
Beryllium	0.64	0.28	--	0.32	--
Cadmium	1300	0.52	5.08	0.2	4.72
Chromium	3400	27	52.0	7.00	43.2
Copper	15 500	15.6	-- --	4.64	--
Lead	8400	92	6400	15	380
Mercury	2.2	1.6	4.1	0.62	1.3
Nickel	62.4	25	--	5.28	--
Selenium	0.030	0.019	0.042	ND 0.004	0.004
Silver	0.92	0.3	0.84	0.2	0.48
Thallium	ND 0.4	ND 0.4	--	ND 0.4	--
Zinc	4520	71.2	--	15.4	--
Barium	--	--	10	--	10

ND=none detected, less than

*Composite

Volatile Organic Analysis (EPA 624)

All data are presented in the table listing the priority and non-priority constituents detected.

Flame Ionization Gas Chromatography Analysis

Sample Identity:	BBD4/1'	BBD14/1'	BBD16/5-8&8-10
Constituents	Concentration, ppm by Weight		
Acrolein	ND 1	ND 1	ND 1
Acrylonitrile	ND 1	ND 1	ND 1

Samples Extracted 11/5/85
Samples Analyzed 11/12/85

Note: Base Neutral & Acid Extractibles will be reported at a later date.

ND=none detected, less than

Appendix D

Laboratory Data Sheets

Gollob Analytical Service

MOLININI-GOLLOB, INC.

47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464 3331

TO: Dr. D. Raviv
Dan Raviv Associates
588 Eagle Rock Avenue
West Orange, NJ 07052

G.A.S. REPORT No. 57163A

Date Requested: 1/18/85
Date Reported: 2/1/85
P. O. No. 84C182

MATERIAL SUBMITTED: 14 (Fourteen) Soil Samples - (13 Analyzed)

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: CM 1063 page 1, CM 1023 page 59

RESULT OF INVESTIGATION

Subject samples have been analyzed by gas chromatography (Hall Electrolytic Conductivity Detection) for the presence of poly-chlorinated biphenyls (PCB'S) as requested.

EP Toxicity results on Sample BBD-10 will be reported at a later date.

Alldata are presented in the attached table.

t 2185

By _____
GOLLOB ANALYTICAL SERVICE

Sample Identification:	7 1'	8 RED 1'	9 1'	9 3'	Date Extracted	Date Analyzed
	Concentration, Milligrams/kilogram					
Constituents						
Petroleum Hydrocarbons	4520	3470	10,700	480	11/11/85	11/12/8
Arsenic	- - -	390	- -	--	11/12/85	11/13/8
Barium	- - -	22	- -	--	1/11/85	11/15/8
Cadmium	- - -	34	- -	--	11/11/85	11/12/8
Chromium	- - -	1900	- -	--	11/11/85	11/12/8
Lead	- - -	8400	- -	--	11/11/85	11/12/8
Mercury	- - -	13.6	- -	--	- - -	11/13/8
Silver	- - -	3.1	- -	--	11/11/85	11/12/8
Selenium	- - -	0.046	- -	--	11/13/85	11/14/8
PCB	- - -	- - -	23	--	11/7/85	11/12/8

Dr. Dan Raviv
Dan Raviv Associates

G.A.S.# 59360

Concentration, ppb by Weight

Volatile Organic Analysis by EPA Method 624

Sample Identification:	RED
Pollutants	S-1
Chloromethane	ND 20
Bromomethane	
Vinyl Chloride	
Chloroethane	
Methylene Chloride	
Trichlorofluoromethane	
1,1,-Dichloroethylene	
1,1-Dichloroethane	
1,2-Dichloroethylene	
Chloroform	
1,2-Dichloroethane	
1,1,1-Trichloroethane	
Carbon Tetrachloride	
Bromodichloromethane	
1,2-Dichloropropane	
trans-1,3-Dichloropropene	
Trichloroethylene	
Benzene	
Dibromochloromethane	
cis-1,3-Dichloropropene	
1,1,2-Trichloroethane	
2-Chloroethylvinyl Ether	
Bromoform	
1,1,2,2-Tetrachloroethene	
1,1,2,2-Tetrachloroethane	
Toluene	
Chlorobenzene	
Ethylbenzene	
1,3-Dichlorobenzene	
1,2 & 1,4-Dichlorobenzene	
Date Extracted	10/30/85
Date Analyzed	11/8/85

Detection threshold 20 ppb by Weight